



US EPA RECORDS CENTER REGION 5



497032

## REMOVAL ACTION WORK PLAN

Sybill, Inc.  
Detroit, Michigan





**CONESTOGA-ROVERS  
& ASSOCIATES**

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May 23, 2003

Reference No. 32664

Mr. Brian Kelly (SE-GI)  
On-Scene Coordinators  
U.S. EPA Response Section 1  
9311 Groh Road  
Grosse Ile, MI 48138

Dear Mr. Kelly:

Re: Finalized Work Plan  
Sybill, Inc. (SRS Environmental) Removal Action

Enclosed, please find a final copy of the Work Plan relating to the Removal Action at the Sybill, Inc. (a.k.a. SRS Environmental). This is being provided by Conestoga-Rovers & Associates (CRA) on behalf of Mr. Roy Dane of Altech Environmental Services, Inc. (Altech), Project Coordinator for Respondents to the pending Administrative Order by Consent. You will also find the finalized Sampling and Analysis Plan (SAP) included as Appendix A to the Work Plan and the finalized Health and Safety Plan (HASP) included as Appendix B to the Work Plan.

Should you have any questions related to this Work Plan, please do not hesitate to contact either Mr. Roy Dane or the undersigned.

Yours truly,

CONESTOGA-ROVERS & ASSOCIATES

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## REMOVAL ACTION WORK PLAN

Sybill, Inc.  
Detroit, Michigan

**MAY 2003**

**REF. NO. 32664 (1)**

This report is printed on recycled paper.

**Prepared by:**  
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## **1.0 INTRODUCTION**

### **1.1 GENERAL**

This Removal Action Work Plan (Work Plan) presents the Scope of Work (SOW) to be completed under a Removal Action (RA) at the Sybill, Inc. Site (Site) in Detroit, Michigan. Conestoga-Rovers & Associates, Inc. (CRA) has prepared this Work Plan on behalf of the Respondents (Client Group) to the Administrative Order by Consent.

This Work Plan has been prepared with the understanding that it will be incorporated into an Administrative Order by Consent (AOC). The RA will be carried out in a manner consistent with the NCP and provisions to ensure that it is protective of human health and the environment.

The tasks associated with the RA and described in this Work Plan are listed below:

- i) Work Plan (including Sampling and Analysis Plan, and Health and Safety Plan);
- ii) drum/container inventory;
- iii) contractor/subcontractor procurement;
- iv) container ownership determination;
- v) mobilization/Site preparation;
- vi) drum/container/debris removal;
- vii) container contents waste compatibility and waste characterization sampling
- viii) removal of bulk liquid waste;
- ix) cleaning of contaminated pits/sumps/roll-off boxes;
- x) cleaning of tanks and tankers;
- xi) solid material characterization and disposal;
- xii) confirmation sampling associated with removal of waste from the ash pit, if applicable, and remediation of reportable releases, if any, associated with the RA;
- xiii) demobilization and Site closeout activities;
- xiv) conduct weekly RA construction meetings at the Site with documented weekly progress reports;
- xv) inspection of sewer and man ways and sampling of contents, as necessary; and
- xvi) prepare Final Report.

The RA will involve the collection, overpacking (as necessary), compatibility and characterization sampling, transport, and off-Site disposal of approximately 112 drums,



11 totes, 20 bags, 38 gas cylinders, 80 miscellaneous sized laboratory containers, and 1 roll-off box. In addition, collection and disposal of contaminated bulk liquid waste from pits, sumps, tanks and tankers will occur. These RA activities will remove the potential for a future release of the contents of the containers. The RA activities will include the appropriate treatment, off-site disposal, recycling, and reuse of the contents of the containers.

The procedures and protocols contained in this Work Plan may be revised based on actual conditions encountered in the field in accordance with the AOC procedures for modifying the Work Plan.

## **1.2      BACKGROUND**

The Site is located at 111 Military Road in Detroit, Wayne County, Michigan. The location of the Site is shown on Figure 1.1. The Site is located within a mixed industrial and residential area and encompasses a 15-acre parcel of land that is divided by Military Road. The Site is occupied by of several structures including an abandoned office building, a process building, a pump house, a boiler house, several above ground storage tanks (ASTs), tanker/trailer trucks, and a water tower. A chain link and barbed wire fence surrounds the Site. Site facilities and structures are shown on Figure 1.2.

In the past the Site was operated as a water treatment facility for the City of Detroit. Subsequently, the Site functioned as a waste oil processing facility until the storage capacity of the Site was reached and at that time the Site was abandoned. The Site has been idle for approximately 20 months. The U.S. EPA conducted a Site assessment of the idle property during October 2002. The Site assessment conducted by the U.S. EPA included inventorying potential hazardous wastes and containers and the collection of waste samples for characterization analysis. Based on conclusions drawn from Site activities conducted by the U.S. EPA it was recommended that identified hazardous wastes on Site be removed and disposed of at a licensed hazardous waste disposal facility, as required, and waste oil on Site should be removed and recycled at a licensed waste oil treatment or blending facility.

In addition, the following observations were made by CRA during recent Site visits:

- Site is in poor condition with evidence of vandalism and trespass;
- Site buildings are structurally in poor condition and present potential safety concerns;

- unidentified wastes contained in approximately 112 drums, 11 totes, 20 bags, 38 gas cylinders, 80 miscellaneous sized laboratory containers, 2 tanker trailers, and 1 roll-off box present on-Site;
- according to the U.S. EPA, an estimated 275,000 gallons of oily water and sludge located in the scale pit, ash pit, various tanks, containment areas and tanker trailers; and
- according to U.S. EPA, an estimated 240,000 gallons of unknown material is contained in an aboveground storage tank identified as Tank 2.

### **1.3      WORK PLAN ORGANIZATION**

This Work Plan is organized in the following manner:

#### **Section 2.0 - REMOVAL ACTIVITIES**

This section presents the detailed description of the removal activities to be completed at the Site.

#### **Section 3.0 - REPORTS**

This section presents a description of the reports to be completed during the RA.

#### **Section 4.0 - PROJECT SCHEDULE**

This section presents a project schedule for the RA.

Also included in this Work Plan are a Sampling and Analysis Plan (SAP) (Appendix A); and a Health and Safety Plan (HASP) (Appendix B).

## **2.0 REMOVAL ACTIVITIES**

### **2.1 GENERAL**

This section presents the rationale and sequence of tasks for the RA activities. Access to lands necessary to complete the RA has been addressed as discussed below.

Respondents have designated as Project Coordinator Mr. Roy Dane of Altech Environmental Consulting, Ltd. for administration of the Client's actions required by the AOC. As the project contractor for the Client Group, CRA will provide overall project management with direction from the Client Group representatives, provide oversight services during implementation of removal activities, collect and manage related data, conduct weekly Site progress meetings, and develop and prepare weekly progress reports and the Final Report.

CRA will manage the procurement of all subcontractors including site security, drum/container removal contractor, project analytical laboratory, on-Site liquid waste removal contractor, and off-Site waste disposal facilities.

U.S. EPA and other parties involved in Site activities will be notified in accordance with the AOC of the name and qualifications of each contractor and key sub-contractors who will conduct activities at the Site three days prior to each contractor's mobilization to the Site or as otherwise agreed to by other parties involved.

Following procurement of the necessary contractors, work activities to be implemented during the RA will include the following:

- implementation of the HASP;
- provision of Site security;
- mobilization of construction facilities, material, equipment, and personnel necessary to perform the work;
- U.S. EPA will be provided with a separate trailer with power and phone;
- provision and maintenance of construction facilities and temporary controls;
- Site preparation including:
  - work zone/property identification,
  - the provision of utilities,
  - construction of decontamination facilities, and
  - construction of staging facilities;
- completion of an initial container inventory;
- determination of container integrity;

- visual and dip inspection of on-Site catch basins and man-ways;
- identification, compatibility and characterization sampling of containerized material
- completion of an initial compatibility screening of the containerized material;
- removal of visually compatible waste streams followed by focused compatibility testing on Site;
- removal, crushing, shredding and off-Site disposal or direct off-Site disposal of empty containers;
- determination of ownership and return of vendor owned containers;
- removal of intact containers, followed by overpacking or securing the containers, if necessary;
- collection into suitable lab packed containers of miscellaneous laboratory chemicals and small containers;
- collection into on-Site vacuum-trucks of contaminated bulk liquid waste in containment areas, pits, sumps, ASTs, and tankers;
- collection into drums of solid material and debris found in the vicinity of the containment area, pits, sumps, tanks, and tankers;
- sampling and analysis of consolidated waste streams to characterize the wastes for off-Site disposal;
- the transportation and disposal of waste material at appropriate disposal facilities in accordance with State and Federal regulations;
- completion of weekly RA construction meetings;
- preparation and distribution of weekly progress reports to include at a minimum:
  - a description of actions which have taken place that week,
  - a summary of all sample analytical results and all other data received or generated during the week,
  - identification of all documents completed and submitted during the week,
  - a description of all actions which are scheduled for the next six weeks and information regarding the progress of construction/removal activities,
  - a summary of any Work Plan modifications proposed or approved,
  - delays, status of schedule,
  - new issues, and
  - issues resolved;
- RA closeout activities including:
  - ASTs rendered inoperable will be left structurally safe,
  - decontamination of Site equipment and facilities,
  - removal and disposal of stored wastewaters, and
  - demobilization of construction facilities and equipment from the Site.

A Final Report will be prepared to present Site RA activities, as described in Section 3.3. Photographs will be taken in order to serve as a pictorial record of work progress,



problems encountered and mitigation activities. CRA's file at the Site will contain color prints, labeled with date and subject of the photograph. Negatives will be stored in a separate file in chronological order. Photographic reporting data sheets, where used, will be cross-referenced with observation and testing data sheets and/or construction problem and solution data sheets. Photographic documentation will also be included in CRA's Final Report.

Activities related to the RA are presented in the following Sections and in the Appendices.

The Site HASP (Appendix B) will be implemented prior to work being performed on Site which involves the handling of waste material. The requirements of the HASP include construction of a decontamination pad and staging pad, medical examination and training for Site personnel, and planning, approval and implementation of the contractor's Health and Safety Plan.

## **2.2      SITE ACCESS**

Access to the Site has been authorized by the Trustee in Bankruptcy of Mr. V.C. Madias, the owner and operator of the Site.

## **2.3      SITE PREPARATION**

Site preparation will include all activities necessary to prepare the Site prior to commencing RA activities. The extent of the Site preparation activities required is described in the following sections. Due to the deteriorating conditions of the Site, a secure and safe indoor staging area will need to be carefully selected. Indoor staging areas will be used where possible to construct the decontamination facility and staging pad to conduct waste compatibility and waste characterization sampling activities. Provisions regarding the structural stability of the building are discussed in Section 7.0 of the HASP (Appendix B).

### **2.3.1      CONSTRUCTION UTILITIES**

Construction utilities will be routed to the personnel Support Zone (SZ) as presented on Figure 1.2, as required, from available utilities in the area. The exact location of the nearest utilities will be determined prior to commencing Site work, as necessary.

Utilities to be supplied to the SZ will include electrical power and telephone. These utilities may be supplied through a generator and a cellular telephone, if appropriate.

### **2.3.2 EQUIPMENT DECONTAMINATION FACILITIES**

An equipment decontamination facility will be constructed in the approximate location presented on Figure 1.2, prior to initiating any activity involving the handling or movement of potentially contaminated materials. A portable decontamination pad will be installed on Site. The decontamination pad will include a wastewater collection sump equipped with a pump and hosing to remove decontamination wastewaters to a wastewater storage tank (size to be determined). A high-pressure steam cleaner with self-contained tank will be located adjacent to the decontamination pad for decontaminating equipment prior to leaving the Site which has potentially contacted waste material.

### **2.3.3 STAGING PADS**

Two staging pads will be installed with a containment berm and a synthetic liner under each pad for leak and spill protection at the approximate location presented on Figure 1.2. In addition, each pad will be constructed to allow for the removal of collected liquids. Liquids collected in the sump will be pumped out as necessary and transferred to the wastewater storage tank.

One staging pad will be used for interim storage of removed containers while sampling, analyses and compatibility testing of contents is performed. The other staging pad will be used for interim storage of containers that are characteristically distinct.

The staging pads may be constructed in cells in order to accommodate the uncertainty associated with the number of containers which will be staged.

## **2.4 SITE SECURITY**

This section outlines the implemented and proposed Site security measures on-Site. The Site has been secured with best efforts to prevent trespassers and to help minimize the threat of direct human contact with containers and waste. Security will be maintained to completion of the RA.

Warning signs have been erected on exterior fencing along the entire perimeter of the Site.

Entrances into the Site will be kept closed and locked to prevent uncontrolled and/or unauthorized access to the Site. Entrances will be locked at all times when Site work is not being conducted. Site security will include, at minimum, three stop-check inspections per day by a security service company and documented in a log.

One main entrance will be established during the removal activities. The entrance will be controlled by the Health and Safety Officer (HSO). The HSO's duties will include:

- i) Provide initial screening of all Site personnel and visitors. A list of authorized personnel and the name of their employer will be available at the Site.
- ii) Maintain a security log in which documentation is provided of all Site personnel, visitors and deliveries and any security incidents. This log will include the date, name, address, company, time in and time out for each employee and visitor. If unauthorized personnel are observed on Site and refuse to vacate the premises, appropriate law enforcement officials will be contacted for appropriate legal actions.
- iii) Maintain a visitor log at the Site. Visitors will not be allowed to enter without the knowledge of CRA. All visitors will be required to complete training in accordance with Section 5.0 of the HASP prior to gaining access to the secured areas.
- iv) Check that all warning signs are secure and intact on a daily basis. If warning signs are found to be removed, the situation will be brought to the attention of CRA and will be rectified at the earliest opportunity.
- v) Contacting and advising local authorities and fire personnel of scheduled removal activities to facilitate their timely response to Site disturbances.

## **2.5 CONTAINERIZED MATERIAL REMOVAL**

Based on previous Site investigations, the containers at the Site may be, as follows:

- empty;
- containing raw material; and

- containing waste material.

Any drums/containers identified to contain raw materials will be labeled as necessary and segregated from the remaining drums/containers. CRA will attempt to interview former Sybill employees in an attempt to identify those raw materials formerly used by Sybill. CRA will also attempt to identify vendors that formerly provided these raw materials to Sybill. Identifiable vendors of confirmed raw materials at the Site will be contacted by CRA and will be invited to remove these materials from the Site. CRA will arrange for the removal of raw materials from the Site where vendors refuse.

Remaining unidentified waste drums/containers will be left in place for supplemental identification and handling as discussed below.

#### **2.5.1      CONTAINERIZED MATERIAL INVENTORY**

An inventory of waste materials present at the Site which are the subject of the RA is provided in Table 2.1. On-Site containers include tankers, drum, totes, bags, pails, various plastic and glass containers, metal gas cylinders and a 20-yard roll-off box. These containers are located throughout the Site. Each container will have to be evaluated for its contents, volume, and integrity. Prior to container removal activities, CRA, will prepare a comprehensive container inventory. Any containers or drums identified to contain raw materials will be appropriately labeled, segregated from the remaining containers, as appropriate, without disturbing any unidentified containers. Containers will not be removed from the Site without required third party approval. Identified empty containers will also be removed for appropriate off-Site disposal. Empty drums will be removed for off-Site disposal.

Remaining unidentified, containerized waste, will be left in place for supplemental identification and handling as discussed below.

#### **2.5.2      CONTAINERIZED MATERIAL SAMPLING**

Once a comprehensive inventory of all on-Site containers has been completed, the containerized contents will need to be sampled and tested to determine the nature of the contents and to identify any hazardous characteristics. The sampling and analytical protocols associated with all sampling events are presented in the SAP(Appendix A). At the time of writing this Work Plan, it is not apparent how many visually distinct waste



streams are present on Site. All samples will be analyzed for waste compatibility in accordance with SW-846

The scope of future compatibility analyses to be completed on-Site of each compatible waste stream will be modified and reduced, based upon the results of the initial compatibility analyses. The scope of reduced compatibility analyses will be approved by U.S. EPA in writing before it is implemented.

The analytical requirements for the initial compatibility samples collected are outlined in Section 2.8, below.

## **2.6        REMOVAL OF CONTAINERS**

Following the completion of the initial compatibility analyses and the development of a reduced list of compatibility analyses for the visually distinct waste streams, CRA will instruct the contractor to begin to remove the containers from the ground surface for placement on the staging pad for further characterization. The location of the staging pad is presented on Figure 1.2. Figure 2.1 illustrates the decision making process for the characterization and disposal of the contents of each container.

Container removal activities are best discussed in terms of visually compatible waste streams; empty containers; and intact containers.

### **2.6.1      REMOVAL OF VISUALLY COMPATIBLE WASTE STREAMS**

Open and deteriorated containers will be removed in accordance with the protocols set out in Section 2.8 below. These containers and the associated spilled contents will be secured in overpacks, spill pans or skid pans and moved to the staging pad. Samples will be collected in the staging area and analyzed on-Site for the reduced list of compatibility analyses discussed above.

Once the on-Site analyses indicate that the visually compatible wastes are chemically compatible, then these wastes will be loaded into roll-off boxes or other waste haulage units for bulking and the collection of further disposal facility acceptance samples, as discussed in Section 2.8, below. Off-Site haulage units will comply with DOT regulations.

## **2.6.2      REMOVAL, CRUSHING, SHREDDING, AND OFF-SITE DISPOSAL OF EMPTY CONTAINERS**

Upon encountering a container, the container will be examined to determine if it is "empty" (a one inch heel is an empty container, as defined in RCRA). Empty containers will be segregated, removed to the staging area and crushed or shredded for off-Site disposal as a RCRA Subtitle D waste. Empty containers that are the property of third party vendors will be returned to those vendors.

## **2.6.3      REMOVAL OF INTACT CONTAINERS**

If a container is found to be intact, it will be recovered in accordance with the procedures set out in Section 2.8, below and transported in overpack drums, spill pan or skid pan to the staging area for opening, inspection, sampling and compatibility analyses.

If after opening and sampling, the container's contents appear to match one of the established visually distinct and compatible waste streams, the sample will be submitted for on-Site compatibility analyses described in Section 2.6.1, and consolidated accordingly.

If after opening and sampling, the container contents do not appear to match one of the established visually distinct and compatible waste streams, the sample will be submitted for off-Site compatibility analyses described in Section 2.9, below. The container will then be secured on the staging pad pending receipt of the compatibility analyses. The results of these analyses will determine whether the container will match an established waste stream. A new compatibility group will be created should the contents of the container not match one of the established waste streams.

## **2.6.4      SMALL CONTAINERS**

Containers less than 35 gallons in capacity will be considered "small". Small containers that are deteriorated or damaged will be managed in accordance with the procedures set out in Section 2.6.1.

Intact small containers will be loaded into an overpack drum, spill pan or skid pan and transported to the staging area. The small containers will be opened in the staging area

and sampled. All samples from intact small containers will be tested on-Site in accordance with the procedures set out in Section 2.6.1.

## **2.7        MATERIALS HANDLING PLAN**

### **2.7.1      DRUM AND CONTAINERIZED WASTE HANDLING PROTOCOLS**

#### **2.7.1.1    GENERAL**

For the purposes of this section, a "drum" refers to a 55-gallon drum, container, pail and any other vessel that contains or did contain waste.

Containerized wastes, such as 55-gallon drums, are present on-Site. When containerized waste is encountered during Site activities, the protocols contained in the Federal Register, Vol. 51, No. 244, Part 1910 - Occupational Safety and Health Standards, 1910 - 120(j) and this section will apply.

This section applies to all activities involved in the handling of drums that may have contained, or do contain, potentially harmful waste materials in both solid and liquid state. The procedures described within this section specify the minimum requirements that will be implemented to minimize the potential for migration of waste constituents to the surrounding environment.

Please note that drum entry procedures are presented in the SAP (Appendix A).

#### **2.7.1.2    EQUIPMENT**

##### **a)        Safety Equipment**

During the handling of drums, safety apparel and equipment as specified in Section 6.0 of the HASP, will be worn or used at all times.

##### **b)        Handling Equipment**

All handling, moving and transporting of drums will be effected with mechanical equipment whenever possible. Drums will be moved by grapppler, or if necessary with non-metallic slings, within a backhoe bucket, front end loader or by other approved means that will prevent damage to drums/containers and release of their contents.

Drums may be transported in spill pans or skid pans to the staging area. Movement or handling by personnel may be required in the event that mechanical means cannot be properly or safely employed due to drum breakage or leakage.

Until wastes are characterized, portions of equipment that contact drums will preferably be constructed of non-ferrous materials. Should steel construction equipment be used, contact portions will be coated or lined to preclude spark generation in accordance with 40 CFR § 1910.120 (j) (1) (xii). Portable pumps, if used, will be intrinsically safe.

All handling and transport equipment will be equipped with Class ABC fire extinguishers, and self contained full air respiratory systems if deemed necessary by the HSO. All equipment used for the handling and transport of drums or containers will be regularly maintained. In particular, the ignition, manifold and exhaust components will be maintained to prevent backfiring or generation of sparks within the exhaust gases.

Prior to removal from the Site, equipment will be decontaminated within the equipment decontamination facility.

### 2.7.1.3 PROCEDURE

#### a) Working Groups

During the removal of the drums, a team of personnel specifically trained in the handling of containerized waste will be designated to perform this task. This team will contain no fewer than two people. During the handling of containerized waste, visual contact will be maintained between members of the working team at all times. All team members will be able to communicate with ease between themselves and will comply with HASP requirements as presented in Appendix B.

#### b) Point-of-Removal Handling

Prior to physically handling a drum or container, a preliminary classification check list will be completed. This list will include a screening of the container for organic vapors with an Organic Vapor Analyzer (OVA), photoionization device (PID), or equivalent, and a visual description of the drum, container contents and labeling information (if available and legible). If, during this inspection, an open or leaking drum is observed to contain liquids, the liquids will be pumped or bailed into a repack drum prior to moving the drum or container. If an open drum is identified to contain solids, the drum will be carefully removed. If the drum is neither open nor leaking, the drum will be carefully



removed and examined for structural and hydraulic integrity. Deteriorated intact drums will be overpacked or loaded into a spill pan or skid pan prior to removal to the staging pad. Drums will be moved by grappler, non-metallic slings, within the backhoe bucket or by other means that will minimize damage to containers and release of contents therefrom.

After overpacking or repacking, if required, the drums will be transported to the staging pad with a front end loader or fork lift configured with a suitable carrying apparatus. Intact, repacked, overpacked, and secured drums will be opened and sampled at the staging pad.

c) Spill Prevention and Response

The handling and transport of drummed/containerized waste will be conducted in a controlled and safe manner, which will minimize damage to the containers and prevent release of the contents. Repack and overpack units will be provided at the point of removal and staging pads for use in the event of leakage or spillage.

In the event that a drum of liquid is spilled, the drum handling team will immediately respond to the spill. The spilled liquids will be confined to the immediate area of the spill and the liquids will be pumped, with the use of a portable hand pump, into a repack drum. The spilled liquids will be confined by diking around the spill with an inert absorbent. Residual liquids which cannot be pumped will be absorbed with a sufficient quantity of inert absorbent to ensure that no free liquids remain.

d) On-Site Contingency Plan

In the event that a release of a hazardous waste occurs on Site beyond the limit of working areas, the following protocols will be implemented:

- i) Notification of Release: The occurrence of reportable releases at the Site, as defined in 40 CFR Part 302 (Designation, Reportable Quantities and Notification), will be reported to the National Response Center (NRC) and U.S. EPA.
- ii) Decontamination Procedures: Decontamination procedures may be required after cleanup to eliminate traces of the substance spilled or to reduce it to an acceptable level. Personnel decontamination will include showers and cleansing or disposing of clothing and equipment as appropriate. All contaminated materials including solvents, clothes, soil, and other materials that cannot be

decontaminated will be properly containerized, labeled, and properly disposed of.

- iii) A release report will be submitted to the U.S. EPA summarizing the release and response action.

If a major release of material stored in a tank or container occurs on Site (such as wastewater or bulked liquids), the following actions will immediately be taken:

- i) notify U.S. EPA and NRC, as required;;
- ii) take immediate measures to control and contain the release within the Site boundaries;
- iii) keep unnecessary personnel away, isolate the area of release, and deny entry;
- iv) do not allow anyone to touch released material;
- v) stay upwind and keep out of low areas; and
- vi) keep combustibles away from the released material.

Upon implementing these procedures, the immediate areas of the release will be scanned with an OVA or PID to identify the level of protection required for personnel safety equipment to clean up the released material. As a minimum, personnel will wear all protective clothing specified in Section 6.0 of the HASP. Air monitoring will determine the need to modify the level of respiratory protection. The air monitoring action levels as presented in the HASP will be followed during any clean up of a release.

Releases from drums which contain solid waste will be placed into approved containers and covered. Each container will be labeled as to contents.

Liquid and/or sludge spills will be first covered with an approved absorbent to absorb any free liquids to minimize the amount that may infiltrate into the ground. The absorbent material contacted by the spill will be excavated and placed in approved and labeled containers.

Contaminated soil/surfaces will be removed and disposed of off-Site or decontaminated.

## **2.7.2     ENVIRONMENTAL CONTROL**

### **2.7.2.1     SURFACE WATER CONTROL**

All drum removal and staging operations will be carried out under dry conditions to the maximum extent possible.

Surface water runoff will be prevented from entering the work area using dikes, sandbags, ditching or other available means. The methods used will be subject to the approval of CRA on the basis of field conditions encountered. Surface water runoff which may potentially contain waste constituents will not be discharged to water courses. Contaminated surface water runoff, if any, associated with outdoor waste removal activities will be contained and stored in wastewater storage tanks. Floor drains and sewers will be plugged prior to commencing removal activities to prevent contaminated surface water runoff, if any, associated with removal activities from migrating off Site..

All equipment necessary to maintain the staging pads free from water will be available on-Site. Collected waters will be transferred to the wastewater storage tanks. There will be at all times sufficient pumping equipment, machinery and tankage in good working condition for all emergencies, such as power outage, and there will be competent workers available at all times for the operation of the pumping equipment.

Drums, situated in the staging area, will be covered with an impermeable tarpaulin during periods of work stoppage including the end of each working day. All drums will be secured when they are full or at the end of the day. Liquids collected in the staging pad sumps will be collected and transferred to the wastewater storage tanks.

### **2.7.2.2     ATMOSPHERIC EMISSIONS MONITORING AND CONTROL**

Air monitoring will be performed during project activities to ensure that all site personnel and the surrounding community will not be adversely impacted during project activities. This section discusses the requirements for conducting active work area and personnel air monitoring at the Site as well as the requirements for conducting perimeter air monitoring at the Site and control measures.

During the progress of site activities, organic vapors and particulate will be monitored at the perimeter of the exclusion zone by the HSO. The following air monitoring

instrumentation will be used for monitoring air quality at the perimeter of the exclusion zone:

- i) a PID or OVA detector;
- ii) a combination oxygen/combustible gas/carbon monoxide/hydrogen sulfide instrument; and
- ii) a routine aerosol monitor (MIE Miniram or equivalent).

Additionally, a windsock, or equivalent, will be operated at the Site to monitor wind direction across the exclusion zone.

a) Calibration

Calibration of air monitoring equipment will be completed on a daily basis in accordance with the manufacturer's specifications, and such calibrations will be recorded in the site daily log book.

b) Background Monitoring

Background will mean those air monitoring data obtained at an upwind location not being impacted by site activities. The windsock or equivalent means of determining wind direction will be established at the Site. Based on wind direction, background monitoring will be conducted using real-time monitoring for total organic vapors at the beginning of each work day. Background monitoring will also be conducted using an aerosol meter to establish baseline conditions at the beginning of each work day.

The wind direction and all background monitoring results will be recorded in the site daily log book.

c) Worker Breathing Zone Air Monitoring

The Contractor will monitor the worker breathing zone within the area of active work to evaluate requirements for worker respiratory protection. This monitoring will be conducted using a PID/OVA, aerosol monitor, and oxygen/combustible gas meter (confined space) which have been appropriately calibrated. These data will be evaluated to determine when work activities need to be modified or shut down due to an action level exceedence.



Air monitoring will be conducted continuously during all waste material handling activities in the breathing zone of workers in the exclusion zone or as deemed necessary by the HSO based on site-specific conditions.

Immediately upon identifying sustained elevated levels of organic vapors greater than 250 ppm within the exclusion zone, the air monitoring results will be reported to the Resident Engineer and HSO and work activities will be shut down. The HSO will determine the cause of sustained elevated levels of organic vapors and alternate work methods or engineering controls will be implemented to rectify the elevated presence of organic vapors

Similarly, upon identifying sustained particulate concentrations greater than 2 mg/m<sup>3</sup>, the air monitoring results will be reported to the Resident Engineer and HSO and work activities will be shut down. The HSO will determine the cause of the elevated levels of particulate and alternated work methods or engineering controls will be implemented to rectify the elevated presence of particulate.

Monitoring for combustible gas, oxygen, carbon monoxide and hydrogen sulfide gas levels will be continuous during drum handling activities conducted according to confined space entry protocol if personnel have to enter into any confined space.

d) Exclusion Zone Perimeter Air Monitoring

Real time air monitoring will be conducted at the perimeter of the exclusion zone using a PID/OVA and aerosol monitor which have been appropriately calibrated. Organic vapor concentrations will be measured at the downwind perimeter of the exclusion zone once every half hour during waste material handling activities. Aerosol readings will be taken every half hour during activities involving potential dust emissions and any work with acids and/or bases.

If, during real-time monitoring, organic vapor concentrations at the exclusion zone perimeter exceed 1 ppm above background for a sustained duration of 60 seconds, the work will be suspended and background organic vapor concentrations will be confirmed to ensure that the increase is attributable to operations within the exclusion zone. Should background monitoring confirm that the increase is attributable to exclusion zone activities, work activities within the exclusion zone will cease until such time as procedures are established to mitigate the increased organic vapor concentrations at the exclusion zone perimeter.

When increased organic vapor concentrations detected at the exclusion zone perimeter are confirmed to be attributable to exclusion zone activities, real time air monitoring will be conducted to document the above background concentrations of organic vapors present at the downwind site boundary. Upon resumption of exclusion zone activities, real-time air monitoring will be conducted at the downwind exclusion zone perimeter and site boundary to confirm that resumption of activities has not resulted in a continued exceedance of the 1 ppm above background organic vapor concentration at the exclusion zone perimeter.

Similarly, if, during real-time monitoring, an aerosol reading greater than 0.2 mg/m<sup>3</sup> above background is sustained for a duration of 60 seconds at the exclusion zone perimeter, the work will be suspended and background aerosol reading will be confirmed to ensure that the increase is attributable to operations within the exclusion zone. Should background monitoring confirm that the increase is attributable to exclusion zone activities, work activities within the exclusion zone will cease until such time as procedures are established to mitigate the increased particulate concentrations at the exclusion zone perimeter.

When increased particulate concentrations detected at the exclusion zone perimeter are confirmed to be attributable to exclusion zone activities, real time air monitoring will be conducted to document the above background concentrations of particulate present at the downwind site boundary. Upon resumption of exclusion zone activities, real-time air monitoring will be conducted at the downwind exclusion zone perimeter and site boundary to confirm that resumption of activities has not resulted in a continued exceedance of the 0.2 mg/ m<sup>3</sup> above background particulate concentration at the exclusion zone perimeter.

Dust control measures will be implemented as required to prevent the generation of dust during waste material handling operations. These dust control measures include the use of water misting systems and the use of covers on trucks hauling dusty materials. Water used for dust control purposes will be from a contaminant-free source approved by the U.S. EPA OSC. Chemical means for dust control will not be used without U.S. EPA approval.

e) Reporting

All air monitoring measurements will be recorded in the Site daily log book. CRA will be advised immediately when air monitoring results indicate:

- excessive exposure to employees within the exclusion zone; and

- the possibility of migration of elevated organic vapors and/or airborne particulate concentrations beyond the perimeter of the exclusion zone.

U.S. EPA will be notified immediately of exceedances of exclusion zone perimeter action levels, which cause a shutdown of site activity. This will be followed up with a written brief documenting the perimeter action level exceedance, its suspected cause and mitigative action taken to prevent its reoccurrence. Results of subsequent air monitoring conducted at the property boundary will also be included in the written brief.

### **2.7.2.3     NUISANCE ODOR**

Storage tank emissions can include breathing losses and displacement losses. The most significant emissions occur during displacement losses when a transfer operation from or to a chemical tanker truck is taking place. Emissions can also occur due to minor leaks (that are contained) when tanker delivery pumps and piping are disconnected.

Where possible, potentially odorous operations will be conducted when the windsock indicates that residential dwellings are not immediately downwind. Otherwise, nuisance odors from the Site will be mitigated through the installation of balance lines to eliminate emissions during bulk loading operations. Where appropriate, an odor suppressant foam may also be used to reduce the potential for off-Site odors.

### **2.7.2.4     GENERAL HOUSEKEEPING**

Daily accumulations of solid waste material such as discarded safety equipment, debris and rubbish will be collected in garbage bags and disposed of in accordance with Federal and State regulations.

General refuse will be contained in a designated area in the support area. The Site will not be allowed to become littered with refuse and/or waste materials from the working areas, but will be maintained in a neat and orderly condition throughout the construction period.

### **2.7.3        DRUM SAMPLING FOR COMPATIBILITY ANALYSES**

The sampling of drummed/containerized wastes will be performed at the drum staging pad. Material handling operations at the drum staging pads will consist of:

- i) assignment of a unique container number to each drum/container;
- ii) notation of approximate volume of contents, condition of drum/container, pertinent labeling information, visual appearance of contents and physical state;
- iii) segregating solid and liquid waste drums on the basis of visual observation or, in the event of uncertainty in accordance with the Paint Filter Test;
- iv) collection of representative samples for compatibility testing and disposal characterization; and
- v) consolidation of similar waste streams on the basis of compatibility testing data and placement in compatible groupings on the drum staging pad pending off-Site disposal.

Empty drums/containers which are removed will be crushed or shredded, if applicable and stored on Site for eventual removal off Site. Drums/containers containing less than one inch of residue will be considered RCRA Empty. New drums/containers which were used for repacking/overpacking may be reused for similar types of wastes if first cleaned of gross/visible contamination. All drums/containers whose contents were consolidated for bulk transport will be crushed for disposal at the completion of the drum/container removal program. Drums/containers identified as being owned by third party vendors will be stored separately on-Site.

The handling and packaging of all drums/containers will be conducted in accordance with the requirements of the HASP.

#### **2.7.4 DRUM/CONTAINER STAGING**

Drums/containers will be staged as follows:

- RCRA Empty drums will be crushed and staged as a waste pile, equipped with a 6-mil polyethylene underliner and perimeter berms, prior to off-Site disposal at a sanitary (Subtitle D) landfill;
- Drums/containers containing visually compatible wastes that conform to the initial compatibility analyses, based on on-Site screening will be bulked immediately into a roll-off box;
- All other drums/containers will be staged at the staging pad until the results of the disposal characterization analysis have determined the characterization of the waste; and

- Following the completion of waste compatibility/field screening and disposal characterization analyses and an appropriate method of disposal is determined, the drummed/containerized waste will be disposed of off-Site in accordance with Federal and State regulations for the disposal of hazardous and/or non-hazardous wastes.

## **2.7.5      PREPARATION OF OFF-SITE TRANSPORT VEHICLES**

All off-Site transport vehicles will be DOT-approved and will be prepared as appropriate prior to receiving waste. The boxes of all vehicles which will transport bulk materials will be lined with a continuous sheet of polyethylene prior to loading and will have sealed tailgates. Drummed/containerized wastes will be loaded and secured in a manner which will prevent damage to the containerized materials.

A weatherproof tarp will be provided and secured over each shipment leaving Site. Exception will only be made for enclosed box transport units.

## **2.7.6      OFF-SITE WASTE TRANSPORTATION AND DISPOSAL**

### **2.7.6.1    MANIFESTING AND LABELING**

Non-hazardous solid waste will be transported under a bill of lading. Drums/containers designated for off-Site disposal will be labeled and manifested (if hazardous) prior to leaving the Site for off-Site treatment, storage or disposal (TSD) facilities. The analytical results obtained from disposal characterization analyses will be used for manifesting purposes and for determining the necessary placarding of vehicles. The manifest forms and records will be consistent with 40 CFR Part 262 "Standards Applicable to Generators of Hazardous Waste", 40 CFR Part 263 "Standards Applicable to Transporters of Hazardous Waste" and the State of Michigan Act 451 Part 111, Hazardous Waste Management, of Michigan's Natural Resources and Environmental Protection Act (NREPA), 1994 PA 451..

A hazardous Waste Generator Number will be obtained from U.S. EPA and will be used on all manifests. A designee will be responsible for signing all manifests as generator. The designee will be trained as required by 40 CFR 172 Subpart H (Docket HM126F).

### **2.7.6.2     AUTHORIZED TRANSPORTERS**

Only transporters which are licensed by U.S. EPA, Department of Transportation (DOT) and the State of Michigan will be used for the transport of hazardous materials if wastes are found to be hazardous. Transporters will also be required to be licensed under Michigan Act 451 Part 111. In addition, transporters of liquid industrial wastes will be required to be licensed under Part 121, Liquid Industrial Wastes, of the NREPA.

If wastes are scheduled for transport to facilities outside of the State of Michigan, transporters will have current licenses in the appropriate State(s) and comply with other applicable Federal laws including DOT requirements.

If wastes are deemed to be non-hazardous, then transporters will be licensed for general transportation of non-hazardous wastes or as required by the State for the transport of Special Waste.

### **2.7.6.3     OFF-SITE CONTINGENCY PLAN**

Transportation routes to off-Site TSD facilities will be predetermined prior to commencing off-Site transport of waste materials. Site entrances from Military Road as presented on Figure 1.2, will be used for shipments from the Site. A primary and secondary route to each TSD facility will be identified. The secondary route will be used only if the primary route becomes impassable due to weather and road conditions or blockage from traffic accidents. The appropriate State and interstate officials will be consulted as to whether any proposed routes are scheduled for construction or seasonal closures which will occur during implementation of this project.

Following disposal characterization analyses and selection of the site(s) for off-Site disposal, an off-Site contingency plan will be prepared, if required, and submitted to the U.S. EPA for approval. It is expected that this approval will be granted expeditiously. Items to be included in this plan are as follows:

- Emergency Response Procedures (fire, explosion, spill);
- Communications; and
- Responsibilities.

#### **2.7.6.4     OFF-SITE DISPOSAL**

##### **a)     Approved Disposal Facilities**

All off-Site shipments of waste will be appropriately disposed at a facility in compliance with U.S. EPA's Off-Site Rule, 40 CFR 300.440. Off-Site TSD facilities for drummed wastes and wastewaters will be approved by third party representatives prior to commencing transport to these facilities. All facilities identified will be RCRA compliant and/or Toxic Substances Control Act (TSCA) compliant, as applicable, and will comply with the requirements specified hereafter.

Any drums/containers deemed to be non-hazardous as determined by the disposal characterization analyses will be disposed of off Site.

Any wastes deemed to be non-hazardous may be transported to a non-hazardous landfill and/or POTW system, as applicable, for disposal.

##### **b)     Letter of Agreement**

Each designated disposal facility will provide a Letter of Agreement. This agreement will specify the total estimated quantities of wastes and the intended method of disposal for each waste stream. Letters will be provided to U.S. EPA for review. Each Letter of Agreement will provide the facility name and U.S. EPA Identification Number, facility locations, name of responsible contact for facility, telephone number for the contact, signed Letter of Agreement to accept wastes as specified, and waste characterization requirements. It may be necessary to supplement the disposal information provided by the designated disposal facilities. This supplementary information, if necessary, will be provided by CRA.

#### **2.7.6.5     DOCUMENTATION**

The appropriate documentation will be generated and maintained for all material transported from the Site to an off-Site disposal/reclamation facility. A waste shipment record, waste manifest or bill of lading that identifies the generator, transporter and disposal facility and corresponding U.S. EPA identification number, the nature of the material, the date and time the material was transported from the Site, and the estimated weight or volume of material will be provided with each loaded transport vehicle. The manifest or bill of lading will be signed by a representative or agent of the owner and the transport vehicle driver before the material is transported from the Site. A copy of



the manifest or bill of lading will be retained by CRA for documentation purposes. Bills of lading will be issued for non-hazardous material removed from the Site.

Upon receipt of the material, the disposal/reclamation facility will be required to sign the manifest. A copy of the signed manifest will be returned to CRA for record-keeping purposes. The completed manifests will be filed and stored in the CRA field project office for the duration of the removal activities.

#### **2.7.6.6     INSPECTION OF TRANSPORT VEHICLES**

Care will be taken to prevent contamination of transport vehicles during loadout for off-Site disposal. All vehicles exiting the Exclusion Zone, if necessary, will be decontaminated at a decontamination station located outside the Exclusion Zone. In the event effective decontamination cannot be accomplished using dry methods, a high-pressure wash will be utilized. Decontamination water will be collected and contained at the decontamination station for subsequent removal and off-Site disposal. CRA will inspect the Site entrance and street to ensure contamination/debris is not being tracked off-Site.

#### **2.7.6.7     OFF-SITE EMERGENCY SPILL RESPONSE**

Transport vehicle drivers will be advised to observe the designated route and report any spills attributable to the transport of waste materials forthwith to the Project Coordinator or his on-Site designee. The Project Coordinator or designee will, as required by law, provide notification to U.S. EPA and NRC of any reportable spill incidents. In the event of an off-Site reportable spill incident, CRA and the transporter will ensure that appropriate cleanup is conducted. CRA will provide oversight to ensure the cleanup of spilled material. CRA will submit a report to U.S. EPA within 24 hours of the reportable spill incident, including the spill location, date and time of the spill, volume of material spilled, response actions taken to abate the spill and precautions implemented to prevent future spills.

#### **2.8            DRUM SAMPLING ACTIVITIES**

The sampling and analytical protocols associated with all sampling events are presented in the SAP. All Work Plan sampling and analyses will be conducted in accordance with the SAP (Appendix A) and will be subject to U.S. EPA approval. The SAP will ensure

that sampling and analyses comply with U. S. EPA guidance on quality assurance/quality control, data validation, and chain of custody procedures.

Upon U.S. EPA's request, CRA will arrange for the laboratory analysis of samples that U.S. EPA collects for quality assurance monitoring. If requested, the quality assurance/quality control procedures followed by the sampling teams and laboratories performing the work will be provided to U.S. EPA. This will include analytical tracking information consistent with OSWER Directive No. 9240.0-2B, "Extending the Tracking of Analytical Services to PRP-Lead Superfund Sites".

#### **2.8.1      COMPATIBILITY ANALYSIS**

Drummed/containerized wastes will be segregated according to compatibility characteristics. These characteristics will be determined by analysis of one sample per drum/container for initial compatibility testing as presented in Table 2.2. This initial compatibility testing will be completed on intact containers whose contents are not visually compatible with known waste streams. Field screening analyses for compatibility testing of visually distinct wastes is likely to consist of the parameter and analytical methods also listed in Table 2.2.

#### **2.8.2      CHARACTERIZATION ANALYSIS**

Disposal characterization analyses will be conducted on representative composite samples of the materials contained in the drums/containers to determine if the containerized material is hazardous, in accordance with 40 CFR 261, to determine the appropriate action for disposal of the material off-Site.

For the purposes of off-Site disposal facility approval, a minimum of one representative sample for each waste stream will be collected to characterize the range of hazardous constituents potentially present at the Site. A summary of specific analytical methods to be used for disposal characterization analyses is presented in Table 2.3.

Specific characterization analysis will be determined based on the actual contents of the drums/containers. Based on Site conditions and/or information obtained by U.S. EPA, Table 2.3 may have to be revised. The number of samples to be collected will be determined in consultation with U.S. EPA and the off-Site disposal facility.

Waste materials will be segregated as liquid wastes or solid wastes when the drums are opened on the staging pad. Materials for which this classification is not readily apparent classification will be determined using the Paint Filter Test. The results of the test will govern disposal classification. In accordance with 40 CFR Part 264 - Subpart N - Landfills, materials passing the Paint Filter Test will be disposed of in a RCRA or TSCA compliant landfill if found to be hazardous. Materials failing the Paint Filter Test will be considered liquid wastes and will be subject to additional compatibility testing and characterization as deemed appropriate, prior to disposal. If found to be hazardous the wastes will be disposed of at an off-Site RCRA or TSCA compliant facility.

## **2.9      LIQUID AND FLOWABLE MATERIAL HANDLING**

Several areas on-Site have been identified to contain large volumes of flowable material such as precipitation contaminated with oil to thick oily sludge. Areas identified to contain flowable material include, containment areas around Tank 1 and Tanks 3, 4, and 5, pits located in the boiler house, the process building and the floor of the pump house, tankers, and Tank 2. In addition, free phase -liquid may be present on accumulated water in on-Site catch basins and man-ways. Spill control measures and spill contingency plans are discussed in Section 2.7.1.3.

### **2.9.1      BULK LIQUID REMOVAL**

Samples will be collected to determine the compatibility of each potential waste stream, as well as for waste characterization purposes. Compatibility sampling and waste characterization sampling will follow procedures set forth in the SAP and those described in Section 2.8.1 and 2.9.2.

To remove all bulk liquid waste, an on-Site vac-truck will be used to vacuum up all liquid material. In order to remove the liquid waste more efficiently, it may be necessary to temporarily install steam lines to decrease the viscosity of the liquid waste. As well, a crew with squeegees may be required to move the liquid material towards the vacuum hose.

Once the bulk liquid waste has been removed, the bulk tanks will be inspected to evaluate the need for additional waste removal. Additional labor may be employed to scrape and/or power wash the interior of the tanks. Residual solids, where present within the tanks, will be scraped and collected in a designated container(s). Thereafter,

the tank may be cleaned with a low volume, high-pressure water wash, which will minimized the quantity of wastewater generated.

## **2.9.2      BULK LIQUID DISPOSAL**

Based on waste characterization sampling analysis, all bulk liquid will be appropriately disposed of at a facility in compliance with U.S. EPA's Off-Site Rule, 40 CFR 300.440. Off-Site facilities will be approved by U.S. EPA prior to commencing transport to these facilities. All facilities identified will be RCRA compliant and/or TSCA compliant, if necessary. Any wastes deemed to be non-hazardous may be transported to a non-hazardous landfill and/or POTW system, as applicable, for disposal.

All bulk liquid generated will be transported to appropriate off-Site facilities for final disposition in accordance with all applicable State and Federal regulations.

Any solid debris will be removed for appropriate disposal. Liquids will be pumped, where feasible, or removed and placed into a 55-gallon drums. The content in the drums will be characterized for disposal and disposal will occur consistent with this Work Plan.

Upon completion of drum/container removal activities and miscellaneous debris removal, containment areas, including sumps and pits will be cleaned.

Cleaning may require bulk removal of accumulated solids by hand scraping and vacuuming (i.e., HEPA vacuuming). Cleaning may also require high pressure power washing to remove any visible contamination. Generated wash water will be collected and characterized for off-Site disposal at a licensed facility. Any solids generated will also be collected and characterized for off-Site disposal.

## **2.10      REMOVAL ACTION CLOSEOUT**

### **2.10.1      GENERAL**

All closeout activities associated with the RA operations will be coordinated and performed in such a manner that no waste materials scheduled for off-Site disposal or mobilized facilities remain at the Site upon completion of this activity.

### **2.10.2     STORAGE TANK DECOMMISSIONING**

Upon removal of the contents from on-Site aboveground storage tanks (fixed and mobile), an inspection of the interior of each tank will be conducted to confirm the tanks are empty. The atmosphere within each tank will then be monitored to confirm the presence or absences of explosive vapors.

Where the presence of explosive vapors is confirmed, the tanks will be made vapor free. Once the tanks are confirmed to be empty and vapor -free, they will be rendered unfit for future use as a liquid storage tank. This will consist of cutting holes in the tanks. Tankers shall either be rendered unfit for further use for storage or arrangements will be made through the Trustee in Bankruptcy for their sale and removal.

Prior to demobilizing from the Site, the tanks will be inspected to confirm that they are structurally safe. The atmosphere inside each tank previously requiring purging, will be checked to confirm that the explosive vapors have not refumed and that any purges gases have dissipated such that the asphyxiant hazard no longer exists.

### **2.10.3     FINAL EQUIPMENT DECONTAMINATION**

A final decontamination of all equipment will be performed on the equipment decontamination pad. Decontamination of equipment will consist of brushing and wire brushing to remove loose dirt and debris and adhered residues, and a high pressure hot water wash. Particular attention will be paid to joints, sprockets, and undercarriages. Each piece of equipment will be inspected after decontamination prior to removal from the Site. An inspection record will be maintained on Site. Each decontaminated piece of equipment leaving the Site will be recorded on the inspection record along with the name of the inspector.

### **2.10.4     STORED WASTEWATER REMOVAL**

Stored wastewater generated from equipment decontamination activities will be characterized prior to removal from the Site. The disposal characterization analyses of the wastewater will determine the appropriate disposal mode. The tank contents will be transferred to liquid waste transportable tankers as necessary and disposed of at an appropriate off-Site facility. Following emptying of the wastewater tanks, the tank interiors will be decontaminated in an appropriate manner if they contained contaminated materials. Any decontamination wastewater generated will be collected

and transported to appropriate off-Site facilities for final disposition in accordance with all applicable State and Federal regulations.

#### **2.10.5     FINAL CLEANUP**

Final cleanup will involve cleaning the Site of all litter and trash and leaving the Site in a neat and orderly condition. Litter and trash resulting from the work will be disposed of at a non-hazardous landfill.

#### **2.10.6     FINAL INSPECTION**

Final inspections will be conducted to review the Site conditions at the conclusion of the Removal Action. The inspection will be conducted and attended by the U.S. EPA OSC. The purpose of the inspection is to determine whether all aspects of removal activities are complete. A punch list of items to be reviewed or addressed during the inspection will be developed. If found, CRA will resolve deficiencies noted during the inspection and coordinate with the OSC for another inspection.

#### **2.11        SECUREMENT OF SITE FOLLOWING REMOVAL ACTIVITIES**

Once all removal activities and have been completed and all on-Site aboveground storage tanks (fixed and mobile) have been inspected and decommissioned as discussed in Section 2.10.2 and all punch list items have been resolved, the Site shall be secured by padlocking the Site entrances and boarding up the ground floor entrances to on-Site buildings. The Client Group's responsibility for Site security will then cease.

### **3.0 REPORTS**

#### **3.1 POST-REMOVAL SITE CONTROL PROPOSAL**

Following RA activities, Site control will be implemented as outlined in the AOC.

#### **3.2 PROGRESS REPORTS**

To document the progress of RA activities, progress meetings/conference calls will be held on a weekly basis with written follow-up progress reports submitted to the OSC weekly unless otherwise requested in writing by the OSC. Progress meeting reports will continue until all the RA activities have been completed, or unless otherwise directed by the OSC. Weekly progress meetings will be used to change the work plan based on new Site information CRA or U.S. EPA may require additional work after consultation with the other party. Items not agreed to will be subject to resolution as outlined in the AOC. Weekly progress reports will contain the following:

- a description of actions which have taken place that week;
- a summary of all sample analytical results and all other data received or generated during the week;
- identification of all documents completed and submitted during the week;
- a description of all actions which are scheduled for the next six weeks and information regarding the progress of construction/removal activities;
- a summary of any RA work plan modifications proposed or approved;
- delays, status of schedule;
- new issues; and
- issues resolved.

#### **3.3 FINAL REPORT**

At the conclusion of the RA activities, a draft Final Report will be submitted to U.S. EPA for review within 60 calendar days after the completion of all removal activities. This draft Final Report will conform to the requirements of 40 CFR 300.165 and the AOC and will contain the following:

- a summary of RA activities;
- a photo log;
- a listing of quantities and types of materials removed off-Site or handled on-Site;



- a summary of the analytical results of all sampling and analysis performed;
- a summary of any field observations made during sampling activities;
- a description of the nature and extent of any contamination encountered at the Site;
- a discussion of removal and disposal options considered for materials removed;
- a listing of the ultimate destinations of the materials removed;
- copies of all manifests for the materials removed; and
- appendices containing relevant documentation generated during the RA.

The draft Final Report will include the start and completion dates of each removal activity.

Upon review by USEPA, the draft Final Report will be finalized. The Final Report will include the following certification signed by a person who supervised or directed the preparation of the report:

"Under penalty of law, I certify that, to the best of my knowledge, after appropriate inquiries of all relevant persons involved in the preparation of this report, the information submitted is true, accurate, and complete."

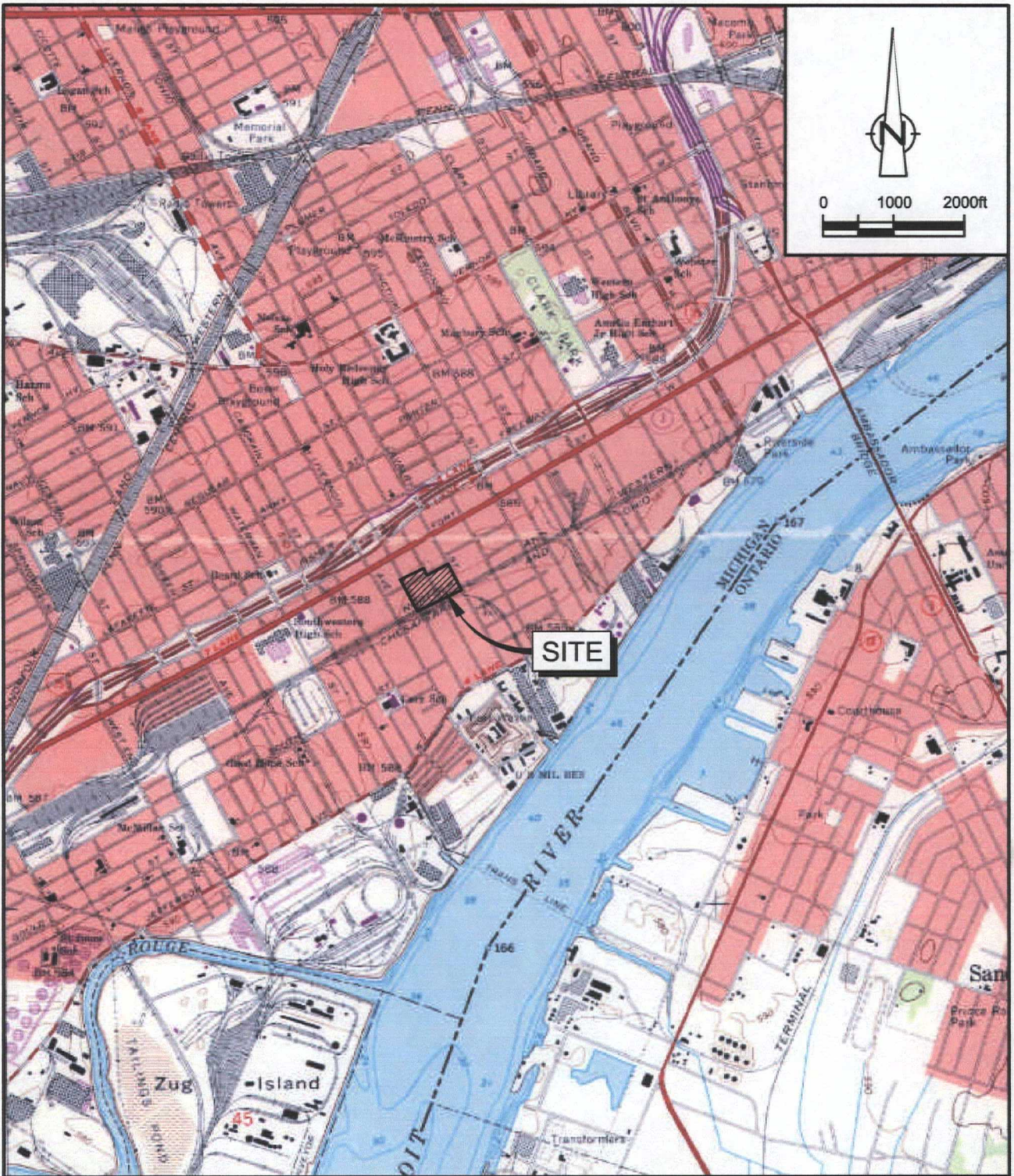
#### **4.0 PROJECT SCHEDULE**

A project schedule is presented on Figure 4.1. The schedule presents project tasks in a sequence that will expeditiously implement Site securement and drum/container removal activities. The schedule is dependent upon weather, maintaining appropriate Site access and receipt of requisite agency approvals.







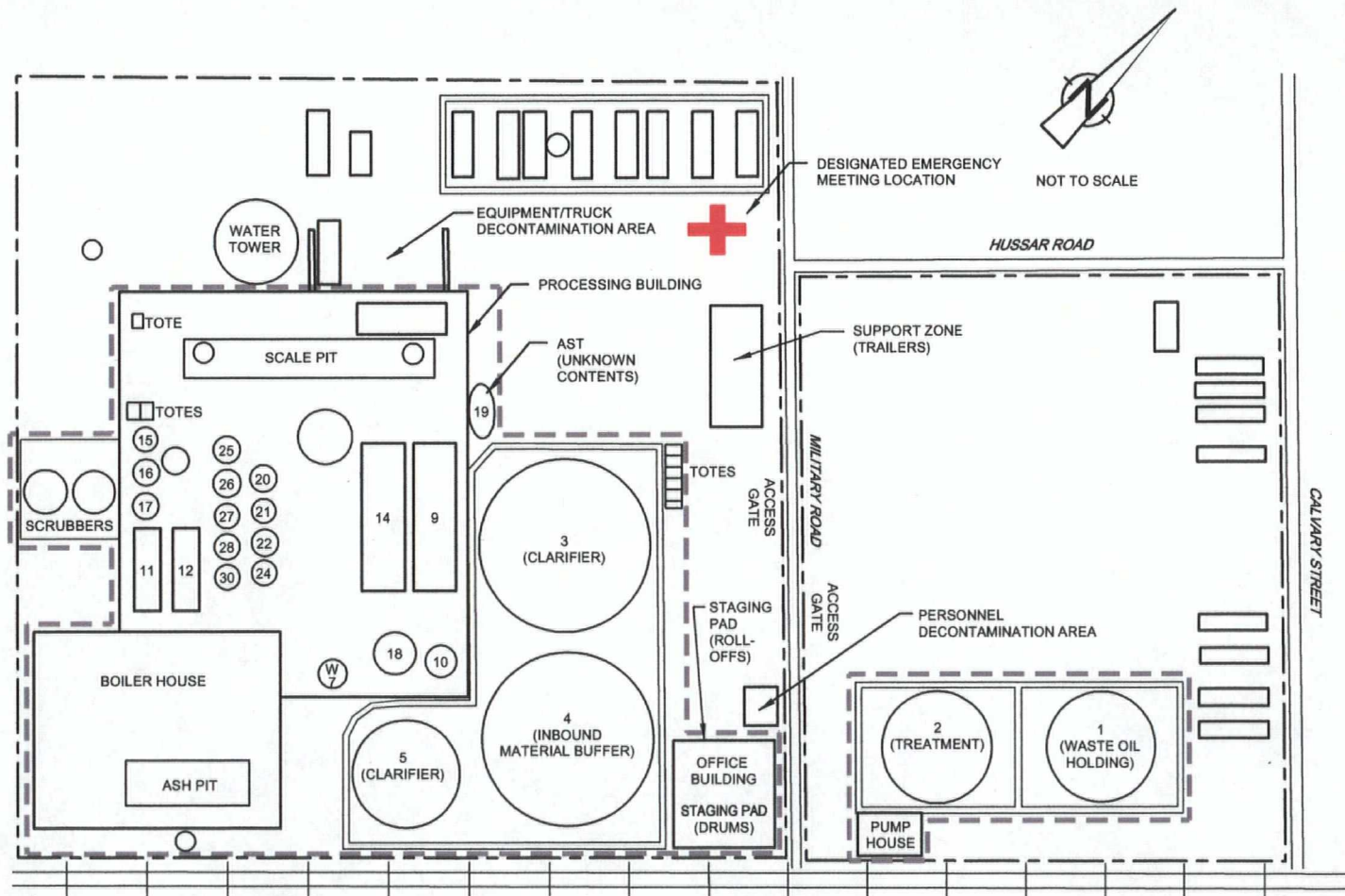


SOURCE: USGS QUADRANGLE MAP;  
DETROIT, MICHIGAN



figure 1.1  
SITE LOCATION MAP  
REMOVAL ACTION WORK PLAN  
SYBILL, INC. SITE  
*Detroit, Michigan*





# **LEGEND**

- EXCLUSION ZONE
- - - - - FENCED PROPERTY
- ==== CONTAINMENT WALL
- ▭ TRUCK TANKER/TRAILER
- ==== RAIL ROAD

**NOTE:** SITE PLAN COULD CHANGE AS DIFFERENT TASKS ARE COMPLETED

figure 1.2  
**SITE PLAN**  
**REMOVAL ACTION WORK PLAN**  
**SYBILL, INC. SITE**  
*Detroit, Michigan*







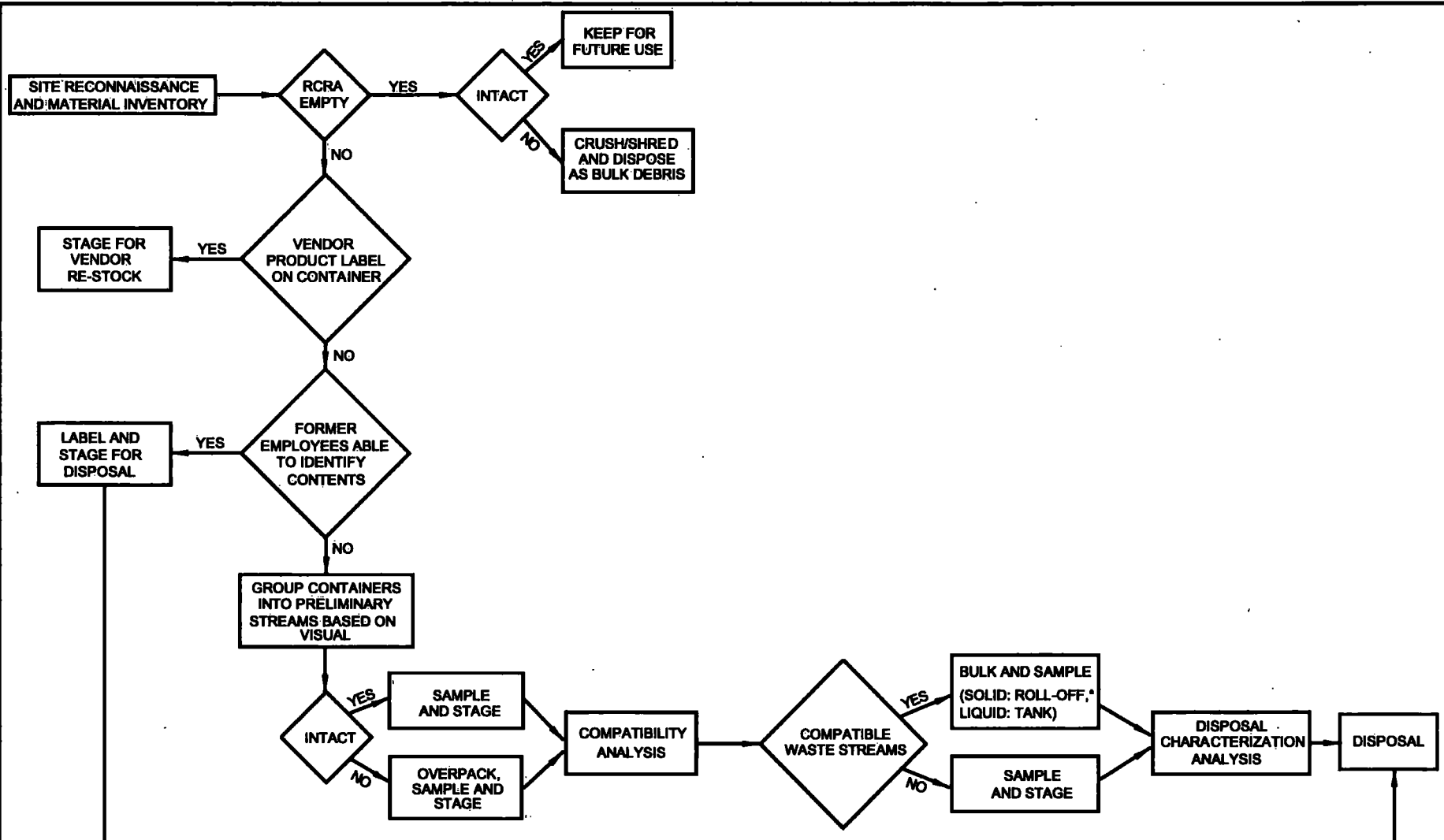


figure 2.1

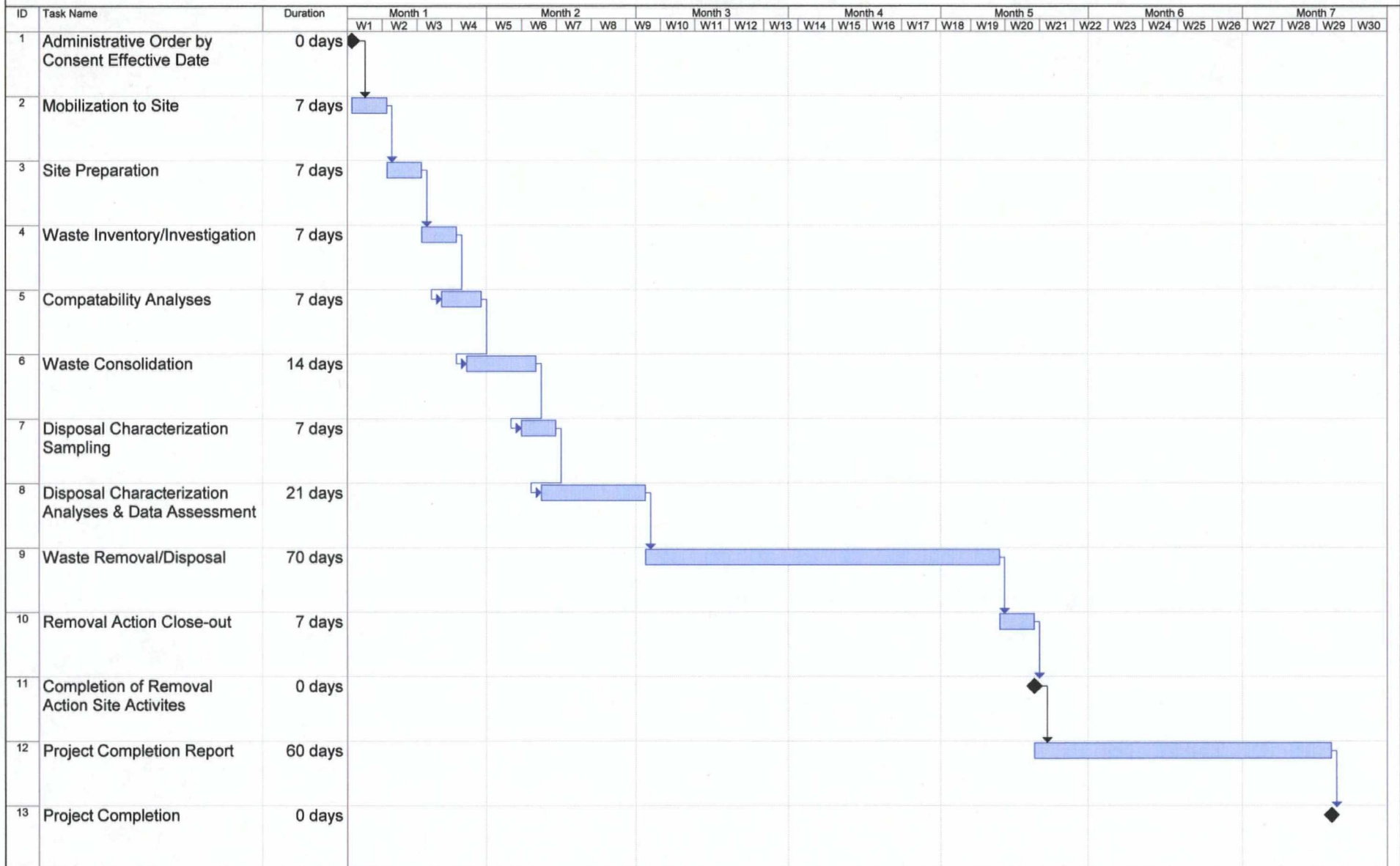
**NOTE:**

\* ONLY IF NOT IGNITABLE

**REMOVAL DECISION TREE**  
**SYBILL, INC. SITE**  
*Detroit, Michigan*



**FIGURE 4.1  
PROJECT SCHEDULE  
REMOVAL ACTION WORK PLAN  
SYBILL INC. SITE  
DETROIT, MICHIGAN**



Project: 32664-Fig4.1  
Date: Fri 5/23/03

Task



Milestone



Project Summary



Group By Summary



Deadline



Notes: Milestones subject to weather conditions, site access, and receipt of requisite agency approvals





TABLE 2.1

**INVENTORY OF ON-SITE POTENTIALLY HAZARDOUS WASTE AND WASTE OIL  
SYBILL, INC. SITE  
DETROIT, MICHIGAN**

<i>Location</i>	<i>Container Type</i>	<i>Container Quantity</i>	<i>Total Quantity</i>	<i>Description</i>
Ash Pit	Pit	1	4,000 Gallons	Unknown Oil, Water and Sludge
Ash Pit Area	55-gallon drums	5	275 Gallons	Accutreat 4620, Accutreat 4533, and Unknown
Ash Pit Area	30-gallon drum	1	30 Gallons	Mineral Spirits
Ash Pit Area	Overpack Drum	1	Gallons	Unknown
Ash Pit Area	55-gallon drums	1	55 Gallons	Unknown Solid
Ash Pit Area	Bags			Unknown (Possible Activated Carbon and Water Softening Salt)
Process Building - Scale	55-gallon drums	5	275 Gallons	Hydrogen Peroxide, Unknown
Process Building - Scale	30-gallon drum	1	30 Gallons	Unknown
Process Building - Scale	5-gallon pail	1	5 Gallons	Unknown
Process Building - Scale	Pit	1	4,000 Gallons	Unknown Oil
Process Building	Floor		Gallons	Unknown Oil
Process Building - Yard (Box Truck)	55-gallons drums	40	2,200 Gallons	Unknown
Process Building - Yard	Tanker Trailer	1	10,000 Gallons	Unknown Oil
Process Building - Yard	Plastic Totes	6		Unknown, Possible Flammable Hazardous Waste
Process Building - Yard	Roll-Off Box	1	20 Cubic Yards	Unknown Solid
Boiler Building - Basement	AST	1	4,000 Gallons	Caustic Soda
Boiler Building - Basement	55-gallon drums	1	55 Gallons	Unknown
Boiler Building - Basement	Bags			Unknown (Possible Activated Carbon and Water Softening Salt)
Boiler Building - Basement	55-gallon drums	6	330 Gallons	Various Water Treatment Chemicals
Boiler Building - Basement	Bags	20	400 Pounds	Amberlite
Boiler Building - Basement	Gas Cylinders	30	30 Cylinders	Propane, Acetylene, and Oxygen
Office Building - 1st Floor	55-gallon drums	1	55 Gallons	Hexane
Office Building - 1st Floor	Gas Cylinders	8	8 Cylinders	Hydrogen, Nitrogen, and Oxygen
Office Building - Upstairs	5-gallon pails	10	50 Gallons	"Carboline" Rust Inhibiting Paint
Office Building - Laboratory	Various Containers			Miscellaneous lab chemicals
Process Building - Outside Gate at Military	Overpack Drum	2	Gallons	Unknown
West Property - AST Secondary Containment	55-gallon drum (poly)	1	55 Gallons	Unknown
AST Secondary Containment	Floor	2	30,000 Gallons	Oily Water
East Property	AST 1	1	50,000 Gallons	Used Oil and Sludge
East Property	AST 2	1	200,000 Gallons	Used Oil and Sludge
West Property	AST 3, Clarifier	1	50,000 Gallons	Used Oil and Sludge
West Property	AST 4, Inbound Material Buffer	1	50,000 Gallons	Used Oil and Sludge
West Property	AST 5, Clarifier	1	50,000 Gallons	Used Oil and Sludge
West Property - Yard	Tanker Trailer	1	10,000 Gallons	Unknown Oil
Pump House	Floor	1	100 Gallons	Unknown Oil
Pump House	55-gallon drums	1	55 Gallons	Hydrogen Peroxide
East Property - Yard	Overpack Drums	2	Gallons	Unknown
East Property - Yard	55-gallon drums	6	248 Gallons	Corrosive, Unknown
West Property - AST Secondary Containment	Overpack drums	2	Gallons	Unknown
West Property - AST Secondary Containment	55-gallon drums	2	110 Gallons	Unknown

**Notes:**

Number of waste containers and volumes are estimated based on CRA's visit to the Site on March 20, 2003 and the Weston Solutions Inc.'s Site Assessment Report dated November 22, 2002.

AST - Aboveground Storage Tank

TABLE 2.2

## WASTE COMPATIBILITY ANALYTICAL PARAMETERS

SYBILL, INC.

DETROIT, MICHIGAN

<i>Sample Media</i>	<i>Parameter</i>	<i>Analytical Methods (1, 2)</i>
<u>Waste Compatibility Analyses (3)</u>		
Solid/Liquid	Layer and physical state	visual classification
	Density	visual classification
	Flash point	1010/1010 Modified
	Organic vapors	PID
	Solubility in water	visual classification
	Solubility in hexane	visual classification
	Total organic carbon (where necessary)	9060
	air/water reactivity	visual classification
	pH	9040/9045
	Oxidizers	KI Starch Test Strip
	Peroxides	Ether Peroxide Test Strip
	Nitric Acid	Sulfuric Acid/Diphenylamine Test
	Perchloric Acid	Sulfuric Acid/Diphenylamine Test
	Cyanide	9010/9012
	Sulfide	9030
	Chloride	9250
	PCBs	8080
	Compatibility Testing	ASTM D5085-90
<u>Field Screening Analyses</u>		
Solid/Liquid	Flammability	ASTM D4982-89
	pH	Litmus Paper Strip
	Paint Filter Test (as necessary)	9095
	PCBs	Field Screening Kit
	Solubility	Hexane/Water
	Total Sulfide	ASTM D4978-89
	Total Cyanide	ASTM D5049-90

Notes:

- (1) Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW-846, 3rd Edition, Revision 1, 1st Update, November 1990, USEPA, Office of Solid Waste.
- (2) QA/QC Guidelines for Removal Actions, OSWER Directive: 9360.4-01, EPA #540/6-90/004, April 1990.
- (3) To be completed for samples of initial screening (refer to Work Plan Section 2.8) and samples from intact drums that are not visually distinct.

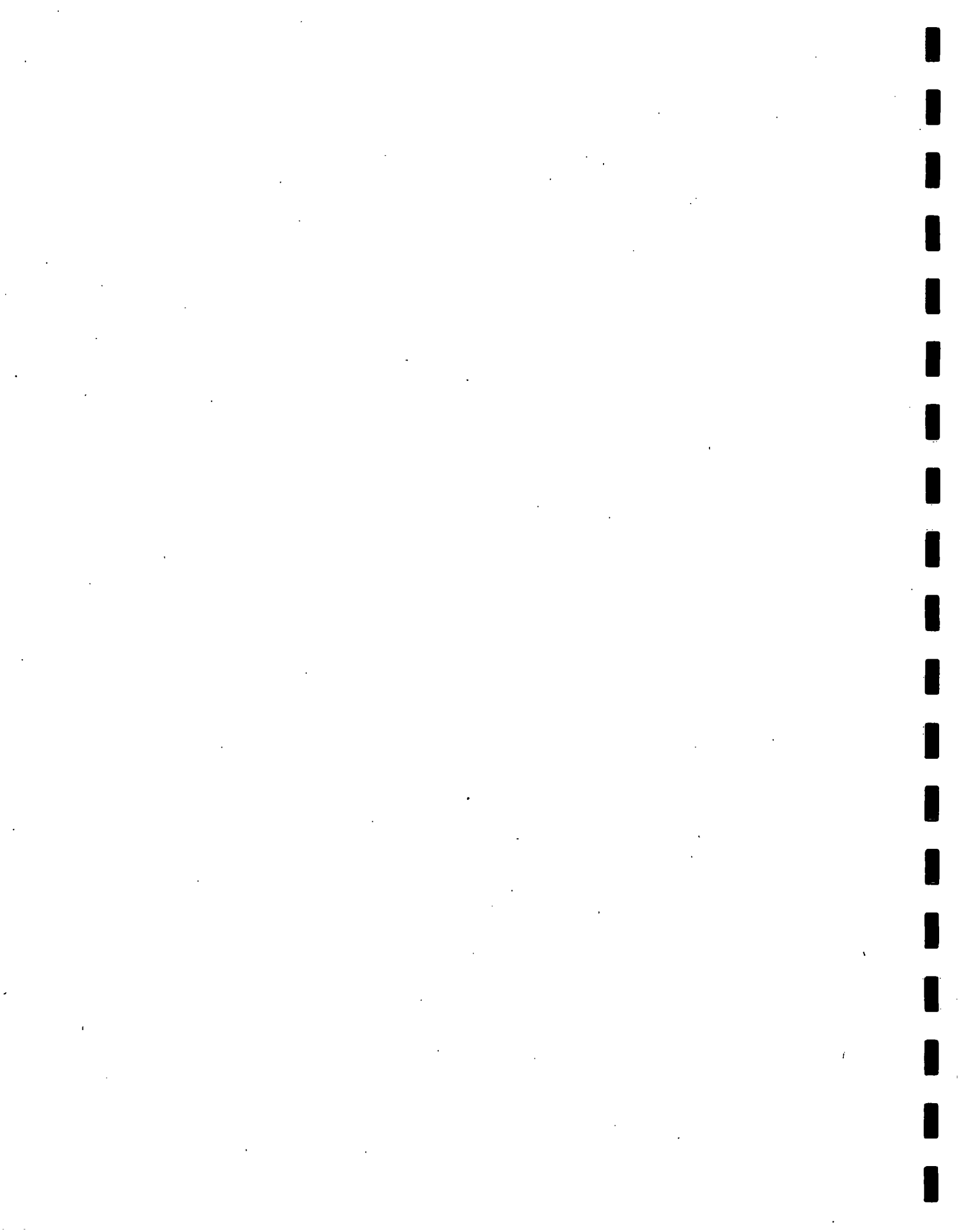


TABLE 2.3

## DISPOSAL CHARACTERIZATION ANALYTICAL PARAMETERS

SYBILL, INC.

DETROIT, MICHIGAN

<i>Sample Media</i>	<i>Parameter</i>	<i>Analytical Methods (1, 2)</i>
Solid/Liquid	Reactivity (Sulfide & Cyanide)	SW-846, Chapter 7, Section 7.3
	Ignitibility (Flash Point)	1010/1010 Modified
	Corrosivity (pH)	9040/9045
	Specific Gravity	Volume & Mass Measurements
	Paint Filter Test	9095
	Physical Description	ASTM D4979-89 (3)
	Bulk Density	ASTM D2015-85
	Moisture Content	-
	TCL PCBs	8080
	TCLP BNAs	1331/8270
	TCLP VOCs	1311/8240
	TCLP Metals	1311/6010/7000 Series

Notes:

- (1) Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW-846, 3rd Edition, Revision 1, 1st Update, November 1990, USEPA, Office of Solid Waste.
  - (2) QA/QC Guidelines for Removal Actions, OSWER Directive: 9360.4-01, EPA #540/6-90/004, April, 1990.
  - (3) American Standards for Testing and Materials.
- TCLP - Toxicity Characteristic Leachate Procedure.  
 BNAs - Base/Neutral/Acid extractables (semivolatile organic compounds).  
 VOCs - Volatile organic compounds.  
 TAL - Target Analyte List  
 TCL - Target Compound List  
 PCBs - Polychlorinated Biphenyls









**APPENDIX A**

**SAMPLING AND ANALYSIS PLAN (SAP)**

## **APPENDIX A**

# **SAMPLING AND ANALYSIS PLAN**

**Sybill, Inc. Site  
Detroit, Michigan**

**MAY 2003  
REF. NO. 32664 (1)**

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TABLE A.5.1	SAMPLE COLLECTION, PRESERVATION AND SHIPPING PROTOCOL SUMMARY

## **A1.0 INTRODUCTION**

### **A.1.1 GENERAL**

This Sampling and Analysis Plan (SAP) establishes the protocols and methodology to be used during the Removal Action (RA) at the Sybill, Inc. (Site) in Detroit, Michigan. Conestoga-Rovers & Associates (CRA) has prepared this SAP on behalf of the Respondents (Client Group) to the pending Administrative Order by Consent.

The Health and Safety Plan (HASP) (Appendix B to the Work Plan) will be implemented prior to any on-Site work. Section A.2.0 outlines the specific sampling and materials handling protocols for field sampling activities.

### **A.1.2 SCOPE OF FIELD ACTIVITIES**

The field activities at the Site include all activities associated with the removal of all drummed/containerized liquid waste material, bulk liquid waste.

The removal program will include the staging, sampling and ultimate disposal of all containerized, bulk, and tank material located at the Site. A previous site assessment conducted by Weston Solutions Inc, (Weston) in October of 2002 has estimated that approximately 112 drums, 11 totes, 20 bags, 38 gas cylinders, 80 miscellaneous sized laboratory containers, as well as a 20-yard roll-off box are currently located at the Site. According to Weston, approximately 450,000 gallons of waste oil and 26,000 gallons of hazardous waste is present located throughout the Site in containment areas, above ground storage tanks (ASTs), drums, totes, various on-Site containers. The contents of on-Site containers will be sampled for waste compatibility and waste characterization in accordance with this SAP.

Containers will be handled in accordance with Section A.2.2 of this SAP and sampling will be completed in accordance with Section A.2.3 of this SAP.

Initially, several samples will be collected from containers of visually similar wastes for waste compatibility analysis. If compatible, these samples will be composited and analyzed for disposal characterization parameters to determine if the material is hazardous, as per federal and state hazardous waste regulations.

For unknown containerized waste, representative samples will be collected as necessary from each container for waste compatibility analysis. Based on the results of these



analyses, the containers will be organized into compatibility groups and staged appropriately on the staging pad. One representative composite sample will be collected from each compatibility group for disposal characterization analysis.

For unknown bulk wastes, representative samples will be collected as necessary from each location for waste compatibility analysis. Based on the results of these analyses, the wastes will be organized into compatibility groups and staged appropriately. One representative composite sample will be collected from each compatibility group for disposal characterization analysis.

Section A.3.2 discusses the specific parameters that will be incorporated into the initial waste compatibility analyses, field screening analyses and disposal characterization analyses.

## **A.2.0 FIELD SAMPLING PROTOCOLS**

### **A.2.1 GENERAL SAMPLING PROTOCOLS**

The following protocols will be employed during all sampling throughout this program:

- 1) prior to waste removal at all locations, all handling equipment will be cleaned according to the protocols outlined in Section A.4.0;
- 2) all sampling instruments and equipment used for collecting samples for physical and chemical analysis will be cleaned in accordance with the protocols presented in Section A.4.0 prior to sampling at each location; and
- 3) a new pair of disposable outer gloves will be used at each sampling location. Additional glove changes will be undertaken as conditions warrant.

Additional protocols specific to each sampling method are presented in the following sections.

### **A.2.2 CONTAINER REMOVAL/STAGING**

The following protocols shall be followed when removing and staging all drums, totes, bags, laboratory containers, gas cylinders and roll-off containers:

- 1) prior to handling each container, the condition of the container will be evaluated. The results of these evaluations will be recorded in the log book;
- 2) degraded containers will be overpacked or placed in a spill pan or skid pan and free liquid pumped to a separate container;
- 3) containers will then be moved to the staging area. Containers of visually similar materials will be staged together; and
- 4) containers in the staging area will be labeled in accordance with the Work Plan.

### **A.2.3     CONTAINER ENTRY/SAMPLING**

This section describes the general procedures that will be followed when opening and sampling intact unknown containerized waste of unknown content removed during the surface removal action and transported to the staging pad. Containers of known content will be consolidated immediately in the designated consolidation area.

#### **a)     Safety Equipment**

During the sampling of containerized materials, personal protective equipment, as specified within Section 6.0 of the HASP, will be worn or used at all times.

Full-face respiratory protection, as required by Section 6.0 of the HASP, will be worn at all times while sampling any containerized waste. Air monitoring conducted in accordance with Section 8.0 of the HASP will identify the need to modify respiratory protection during the sampling of containerized materials.

#### **b)     Sampling Equipment**

Materials and equipment required for sampling are as follows:

- 1)     Appropriate laboratory supplied sample containers;
- 2)     A uniquely numbered sample identification label affixed to the sample container.
- 3)     Chain-of-Custody data sheets.
- 4)     Four-foot by 3/4-inch I.D. glass or acrylic sampling thief.
- 5)     Steel trowel or "spoon" for collection of solid or sludge samples, if applicable.
- 6)     Remotely operated pneumatic ram or check key device.
- 7)     Brass (non-sparking) mallet and chisel.
- 8)     Brass Bung wrench.

#### **c)     Presampling Safety Considerations**

Extreme care will be exercised in opening drums or other sealed containers in which the contents may be harmful to sampling personnel. When practical, containers will not be moved or opened unless the container appears to be structurally sound.

After the initial opening and visual inspection of the container contents, containers will be tested for compatibility as per A.3.0. Based on initial observation, containers will be segregated based on visual compatibility, and moved to the portion of the staging pad reserved for preliminary staging and sampling. Containers will be staged in an upright

position. Containerized materials will be further segregated into groups of similar wastes, based on compatibility testing. All containers and mechanical equipment will be grounded prior to the commencement of sampling.

When handling drums known or suspected of containing shock-sensitive or reactive wastes, precautions outlined in Section 7.0 of the HASP shall be followed.

d) Container/Drum Entry

If the bung or lid can be removed, the sampling of contained liquids will be safely accomplished by glass thief. Following sampling, the glass thief will be broken and discarded within the drum. A drum that has a badly rusted bung, or that cannot be sampled as above, will be entered with a hydraulically operated non-sparking penetrating device operated remotely or using a similar method approved by the U.S. EPA. All openings will be plugged except during sampling operations.

e) Sampling Procedures

The following procedures will be followed during sampling of drummed and containerized liquid waste.

- 1) Remove cover from sample container.
- 2) Insert sampling thief almost to the bottom of the container or until a solid layer is encountered. If a solid layer is encountered, sampling will be determined based on the apparent characteristics of the layer (e.g. sampling thief for non-viscous sludge, chisel for dense solid material, etc.). About one foot of tubing should extend above the container. The sample will be collected from a minimum of 12 inches down from the top of the containerized waste.
- 3) Allow the waste in the container to reach its natural level in the tube.
- 4) Cap the top of the sampling tube with a double-gloved thumb or stopper, ensuring liquids do not come into contact with the sampler's thumb or stopper.
- 5) Carefully remove the capped tube from the container and insert the uncapped end into the sample container. Do not spill liquid on outside of bottle.

- 6) Release the thumb or stopper and allow the glass thief to drain completely and fill the sample container. Repeat the above steps until sufficient volume has been collected for analysis.
- 7) Remove tube from the sample container, break in two pieces and place the tube in the container.
- 8) Cap the sample container tightly and place prelabeled sample container in a carrier.
- 9) Replace the lid or place plastic over the container.
- 10) Transport the sample to the laboratory for analysis. If possible, on-site hazardous categorization screening will take place.

Sampling of containerized solids or sludges, if encountered, will in general conform to the preceding procedures with the following exceptions:

- 1) Collect representative samples from several depths of the drum, if possible, and composite them in a pre-cleaned stainless steel bowl.
- 2) Sample solids with a stainless steel knife, spoon, trowel, or similar method.
- 3) Transfer the sample material into a laboratory-supplied bottle

f) Container Labeling

- Each container, drum and/or overpack drum will be marked with a paint stick, using the numbering system described as follows:
- Example: Y-XXXX

where:        Y        -        refers to drum nest identification  
                   XXXX -        unique drum/container number starting with 0001

## **A.2.4 BULK WASTE SAMPLE COLLECTION**

This section describes the general procedures that will be followed when sampling bulk liquid waste, including waste contained in Tank 2 as well as bulk liquid waste present in containment areas, ASTs, and tankers located throughout the Site.

### **a) Safety Equipment**

During the sampling of bulk liquid materials, personal protective equipment, as specified within Section 6.0 of the HASP, will be worn or used at all times.

Full-face respiratory protection will be worn at all times while sampling any bulk liquid waste. Air monitoring conducted in accordance with Section 8.0 of the HASP will identify the need to modify respiratory protection during the sampling of bulk liquid materials.

### **b) Sampling Equipment**

Materials and equipment required for sampling are as follows:

- 1) Appropriate lab supplied sample containers;
- 2) A uniquely numbered sample identification label affixed to the sample container;
- 3) Chain-of-Custody data sheets;
- 4) Four-foot by 3/4-inch I.D. glass or acrylic sampling thief;
- 5) Steel trowel or "spoon" for collection of solid or sludge samples, if applicable;  
and
- 6) Brass (non-sparking) cutting tools.

### **c) Presampling Safety Considerations**

Extreme care will be exercised when sampling bulk liquid wastes in which the contents may be harmful to sampling personnel. After the initial visual inspection of the bulk liquid waste, waste will be tested for compatibility as per section A.3.0. Based on initial observation, wastes will be visually separated into two classes, solid or liquid, and sampled accordingly. All containers and mechanical equipment will be grounded prior to the commencement of sampling.

During the initial inspection, any wastes known or suspected of containing shock-sensitive or reactive wastes will be handled in accordance with Section 7.0 of the HASP.

d) Sampling Procedures

The following procedures will be followed during sampling of bulk liquid waste.

- 1) Access points to container interior are determined. If readily determined access ports can not be determined, access to the container's interior will be cut into the container using non-sparking cutting equipment;
- 2) Insert sampling thief almost to the bottom of the container or until a solid layer is encountered. If a solid layer is encountered, sampling will be determined based on the apparent characteristics of the layer (e.g. sampling thief for non-viscous sludge, chisel for dense solid material, etc.). About one foot of tubing should extend above the waste. The sample will be collected from a minimum of 12 inches down from the top of the bulk liquid waste;
- 3) Allow the bulk waste to reach its natural level in the tube;
- 4) Cap the top of the sampling tube with a double-gloved thumb or stopper, ensuring liquids do not come into contact with the sampler's thumb or stopper;
- 5) Carefully remove the capped tube from the waste and insert the uncapped end in the sample container. Do not spill liquid on outside of bottle;
- 6) Release the thumb or stopper and allow the glass thief to drain completely and fill the sample container. Repeat the above steps until sufficient volume has been collected for analysis;
- 7) Remove tube from the sample container, break in two pieces and place the tube in the drum;
- 8) Cap the sample container tightly and place pre-labeled sample container in a carrier.
- 9) Transport the sample to the laboratory for analysis. If possible on-site screening will take place.

Sampling of bulk solids or sludges, if encountered, will in general conform to the preceding procedures with the following exceptions:

- 1) Collect representative samples from several depths of the drum, if possible, and composite them in a pre-cleaned stainless steel bowl.
- 2) Sample solids with a stainless steel knife, spoon, trowel, or similar method.
- 3) Transfer the sample material into a laboratory-supplied bottle

#### **A.2.5 FREE-PHASE LIQUID SAMPLING**

CRA will inspect accumulated water in on-Site catch basins and man-ways for evidence of free-phase liquids. Where present samples of the free-phase liquid and accumulated water will be collected. This section describes the general procedure that will be followed when sampling accumulated water and free phase liquids.

Materials and equipment required for sampling are as follows:

- 1) Appropriate lab supplied sample bottles;
- 2) A uniquely numbered sample identification label affixed to the sample container; and
- 3) Chain-of-Custody data sheets.

When collecting accumulated water/free phase samples, direct dipping of the sample container into the accumulated water/free phase liquid is acceptable unless the sample bottles contain preservatives. If the bottles contain preservative, then pre-cleaned, unpreserved bottles should be used to collect the sample. The accumulated water/free product sample should then be transferred to the appropriate preserved laboratory supplied bottles.

#### **A.2.6 SAMPLE LABELING**

Each sample will be labeled with a unique sample number that will facilitate tracking and cross-referencing of sample information. The sample numbering system to be used is described below:

Example: S - #####-MMDDYY-XX-001

where: S - designates sample matrix (S-solid, L-liquid)



##### - Site reference number  
YYMMDD - date of collection (year, month, day)  
XX - sampler's initials  
001 - sequential number starting with 001

Quality Control (QC) samples will also be numbered with a unique location number using this numbering system.

#### **A.2.7     FIELD LOG**

The field log book will be a bound document with consecutively numbered pages. The entries for each day commence on a new page which will be dated. Corrections will be made by marking through the error with a single line, so as to remain legible, and initialing this action followed by writing the correction with the date of correction. The field log book generated will be numbered consecutively and maintained by CRA.

The following information will be recorded in the field log book for each sample collected:

- 1)     drum/container identification;
- 2)     unique sample identification number;
- 3)     date and time (in 2400-hour time format) of sample collection;
- 4)     weather conditions;
- 5)     designation as to the type of sample (solid, liquid);
- 6)     designation as to the means of collection (grab, sampling thief, etc.);
- 7)     name of sampler;
- 8)     analyses to be performed on sample; and
- 9)     any other relevant comments such as odor, staining, texture, preservation, etc.

### **A.3.0 WASTE SCREENING**

#### **A.3.1 WASTE COMPATIBILITY**

Once the waste samples are collected they will be analyzed using the waste screening protocol to check for waste compatibility. Waste samples will be submitted and tested for the analytical parameters shown in table A.3.1.

#### **A.3.2 DISPOSAL CHARACTERIZATION**

Once compatibility of the waste streams has been determined, composite samples of each waste stream will be collected for waste characterization analyses, including those parameters identified in Table A.3.2. These parameters will be analyzed to ensure the proper disposal of the waste associated with the Site.

#### **A.4.0 EQUIPMENT CLEANING AND DECONTAMINATION**

##### **A.4.1 EQUIPMENT CLEANING**

Prior to mobilization of the removal equipment to the Site, and prior to commencing work, all associated equipment will be thoroughly cleaned by a high pressure, low volume water or steam wash to remove oil, grease, mud, and other foreign matter. The equipment will be inspected by the CRA engineer or geologist to ensure that all seals and gaskets are intact, and that no fluids are leaking. After the visual inspection has been completed, the engineer or geologist will determine if additional cleaning is required. If required equipment will receive a thorough recleaning using a high pressure, low volume water or steam wash. All equipment will be decontaminated between removal activities, as required.

Unless otherwise stated in Section A.2.0 and prior to the collection of any samples designated for chemical analyses, all sampling equipment and tools, except for dedicated equipment, will be cleaned using the following cleaning protocols:

- i) wash thoroughly with non-phosphate detergent and potable water using a brush to remove particulate matter or surface film if any;
- ii) rinse with potable/deionized water;
- iii) rinse with deionized water;
- iv) air dry; and
- v) wrap in aluminum foil or polyethylene until required and during transport to the sampling site.

Upon completion of removal activities, the equipment will be thoroughly cleaned by a high pressure, low volume water or steam wash to remove soils and other foreign matter prior to demobilization from the Site.

Fluids used for cleaning will be disposed of in accordance with Section 2.10.4 of the Work Plan.

##### **A.4.2 DECONTAMINATION WASTE HANDLING**

All wash and rinse waters, and excess sampling waters generated during investigative activities will be containerized in Department of Transportation (DOT) approved 55-gallon drums or equivalent, labeled, and sealed prior to characterization for disposal.

## **A.5.0 SAMPLE SHIPMENT AND CONTAINERS**

### **A.5.1 CHAIN OF CUSTODY RECORDS**

Chain-of-custody records will be used to track all samples from time of sampling to the arrival of samples at the laboratory.

Each shipping container being sent to the laboratory will contain a chain-of-custody form. The chain-of-custody form consists of four copies which are distributed to the sampler, to the shipper, to the contract laboratory and to the office file of CRA. The sampler and shipper will maintain their copies while the other two copies are enclosed in a waterproof enclosure within the sample container. The laboratory, upon receiving the samples, will complete the remaining copies. The laboratory will maintain one copy for its records. The executed original will be returned to CRA with the data deliverables package.

### **A.5.2 SAMPLE CONTAINERS AND HANDLING**

All samples will be placed in appropriate sample containers, labeled, tagged and properly sealed. In addition, sample labels and sample tags (which will be affixed to the neck with a wire) will include sample number, place of collection, date and time of collection, and analyses to be performed. Samples will be cushioned within the shipping coolers by the use of vermiculite and/or bubble pack. Samples will be kept cool by the use of plastic bags of ice or cooler packs, as required and each sample will have an individual sample tag.

Samples will be shipped by commercial courier on a regular basis to the project laboratory.

Two seals comprised of CRA's chain-of-custody tape will be placed around each shipping cooler prior to shipment to secure the lid and provide evidence that the samples have not been tampered with en-route to the laboratory. Clear tape will be placed over the seals to ensure that they are not accidentally broken during shipment.

Upon receipt of the cooler at the laboratory, the cooler will be inspected by the designated sample custodian. The condition of the cooler and seal will be noted on the chain-of-custody form by the sample custodian. The sample custodian will document the date and time of receipt of the cooler and sign the chain-of-custody forms.

The sample custodian then will check the contents of the cooler with those samples listed on the chain-of-custody form. If damage or discrepancies are noticed, they will be recorded in the remarks column of the chain-of-custody form, dated and signed. They will be reported to the laboratory supervisor who will inform the laboratory manager and QA officer.

Sample disposal will be the responsibility of the laboratory. Upon disposal, the laboratory shall sign the next open "Relinquished by" box, and the word "Disposed" shall be written in the "Received by" box.

### **A.5.3      SAMPLE PRESERVATION AND SHIPPING PROTOCOL**

Samples will be preserved in such a manner that their properties are not compromised before being submitted for analysis. Table A.5.1 outlines the preservation method and shipping protocol for each of the required parameters for analysis.

#### **A.6.0 QUALITY ASSURANCE PROJECT PLAN (QAPP)**

The U.S. EPA policy requires that all work performed by or on behalf of U.S. EPA involving the collection of environmental data be implemented in accordance with a QAPP. The QAPP is a planning document that provides a "blueprint" for obtaining the type and quantity of data needed to support environmental decision making.

The project QAPP for this RA is to analyze each sample collected for compatibility purposes for the parameters presented in Table A.3.1 and that the samples are prepared in accordance with preparation methods listed and analyses are conducted in accordance with analytical methods presented in Table A.3.1. The QAPP for this RA is also to analyze each sample collected for waste characterization purposes for the parameters presented in Table A.3.2 and that the samples are prepared in accordance with preparation methods listed and analyses are conducted in accordance with analytical methods presented in Table A.3.2.

To ensure that samples upon which the analytical data will be generated have been collected and preserved appropriately, the project QAPP for this RA includes sample collection, preservation and shipping protocol as presented in Table A.5.1.



TABLE A.3.1

## WASTE COMPATIBILITY ANALYTICAL PARAMETERS

SYBILL, INC.

DETROIT, MICHIGAN

<i>Sample Media</i>	<i>Parameter</i>	<i>Analytical Methods (1, 2)</i>
<u>Waste Compatibility Analyses (3)</u>		
Solid/Liquid	Layer and physical state	visual classification
	Density	visual classification
	Flash point	1010/1010 Modified
	Organic vapors	PID
	Solubility in water	visual classification
	Solubility in hexane	visual classification
	Total organic carbon (where necessary)	9060
	air/water reactivity	visual classification
	pH	9040/9045
	Oxidizers	KI Starch Test Strip
	Peroxides	Ether Peroxide Test Strip
	Nitric Acid	Sulfuric Acid/Diphenylamine Test
	Perchloric Acid	Sulfuric Acid/Diphenylamine Test
	Cyanide	9010/9012
	Sulfide	9030
	Chloride	9250
	PCBs	8080
	Compatibility Testing	ASTM D5085-90
<u>Field Screening Analyses</u>		
Solid/Liquid	Flammability	ASTM D4982-89
	pH	Litmus Paper Strip
	Paint Filter Test (as necessary)	9095
	PCBs	Field Screening Kit
	Solubility	Hexane/Water
	Total Sulfide	ASTM D4978-89
	Total Cyanide	ASTM D5049-90

Notes:

- (1) Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW-846, 3rd Edition, Revision 1, 1st Update, November 1990, USEPA, Office of Solid Waste.
- (2) QA/QC Guidelines for Removal Actions, OSWER Directive: 9360.4-01, EPA #540/6-90/004, April 1990.
- (3) To be completed for samples of initial screening (refer to Work Plan Section 2.8) and samples from intact drums that are not visually distinct.



TABLE A.3.2

## DISPOSAL CHARACTERIZATION ANALYTICAL PARAMETERS

SYBILL, INC.

DETROIT, MICHIGAN

<i>Sample Media</i>	<i>Parameter</i>	<i>Analytical Methods (1, 2)</i>
Solid/Liquid	Reactivity (Sulfide & Cyanide)	SW-846, Chapter 7, Section 7.3
	Ignitibility (Flash Point)	1010/1010 Modified
	Corrosivity (pH)	9040/9045
	Specific Gravity	Volume & Mass Measurements
	Paint Filter Test	9095
	Physical Description	ASTM D4979-89 (3)
	Bulk Density	ASTM D2015-85
	Moisture Content	-
	TCL PCBs	8080
	TCLP BNAs	1331/8270
	TCLP VOCs	1311/8240
	TCLP Metals	1311/6010/7000 Series

Notes:

- (1) Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW-846, 3rd Edition, Revision 1, 1st Update, November 1990, USEPA, Office of Solid Waste.
  - (2) QA/QC Guidelines for Removal Actions, OSWER Directive: 9360.4-01, EPA #540/6-90/004, April, 1990.
  - (3) American Standards for Testing and Materials.
- TCLP - Toxicity Characteristic Leachate Procedure.  
 BNAs - Base/Neutral/Acid extractables (semivolatile organic compounds).  
 VOCs - Volatile organic compounds.  
 TAL - Target Analyte List  
 TCL - Target Compound List  
 PCBs - Polychlorinated Biphenyls

**TABLE A.5.1**  
**SAMPLE COLLECTION, PRESERVATION AND**  
**SHIPPING PROTOCOL SUMMARY**  
**SYBILL, INC.**  
**DETROIT, MICHIGAN**

<i>Matrix</i>	<i>Parameter</i>	<i>Preservatives</i>	<i>Holding Time (1) (days)</i>	<i>Shipping</i>	<i>Packaging</i>
Solid/Liquid	Reactivity (Sulfide & Cyanide)	iced to 4°C (±2°C)	ASAP	Federal Express - Priority 1	- cooler, cushioning (i.e., bubble pack, foam, vermiculite)
	Ignitibility (Flash Point)	iced to 4°C (±2°C)	ASAP	Federal Express - Priority 1	- cooler, cushioning (i.e., bubble pack, foam, vermiculite)
	Corrosivity (pH)	iced to 4°C (±2°C)	ASAP	Federal Express - Priority 1	- cooler, cushioning (i.e., bubble pack, foam, vermiculite)
	Specific Gravity	iced to 4°C (±2°C)	ASAP	Federal Express - Priority 1	- cooler, cushioning (i.e., bubble pack, foam, vermiculite)
	Bulk Density	iced to 4°C (±2°C)	ASAP	Federal Express - Priority 1	- cooler, cushioning (i.e., bubble pack, foam, vermiculite)
	Moisture Content	iced to 4°C (±2°C)	ASAP	Federal Express - Priority 1	- cooler, cushioning (i.e., bubble pack, foam, vermiculite)
	TCL PCBs	iced to 4°C (±2°C)	14/40 (7/40)	Federal Express - Priority 1	- cooler, cushioning (i.e., bubble pack, foam, vermiculite)
	TCLP VOCs	iced to 4°C (±2°C)	14/14 (7/40)	Federal Express - Priority 1	- cooler, cushioning (i.e., bubble pack, foam, vermiculite)
	TCLP BNAs	iced to 4°C (±2°C)	14/40 (7/40)	Federal Express - Priority 1	- cooler, cushioning (i.e., bubble pack, foam, vermiculite)
	TCLP Metals/TAL Metals	iced to 4°C (±2°C)	180/180	Federal Express - Priority 1	- cooler, cushioning (i.e., bubble pack, foam, vermiculite)

**Notes:**

(1) - Holding times in parentheses are for liquid samples.

TCLP - Toxicity Characteristic Leachate Procedure

VOCs - Volatile organic compounds.

PCBs - Polychlorinated biphenyls.

TOX - Total organic halides.

ASAP - As soon as possible.

14/40 - From time of collected to extraction/from time of extraction to time of analysis (for TCLP - two holding time periods are listed for extraction.)





**APPENDIX B**

**HEALTH AND SAFETY PLAN (HASP)**

## **APPENDIX B**

# **HEALTH AND SAFETY PLAN**

**Sybill, Inc. Site  
Detroit, Michigan**

**MAY 2003**

**REF. NO. 32664 (1)**

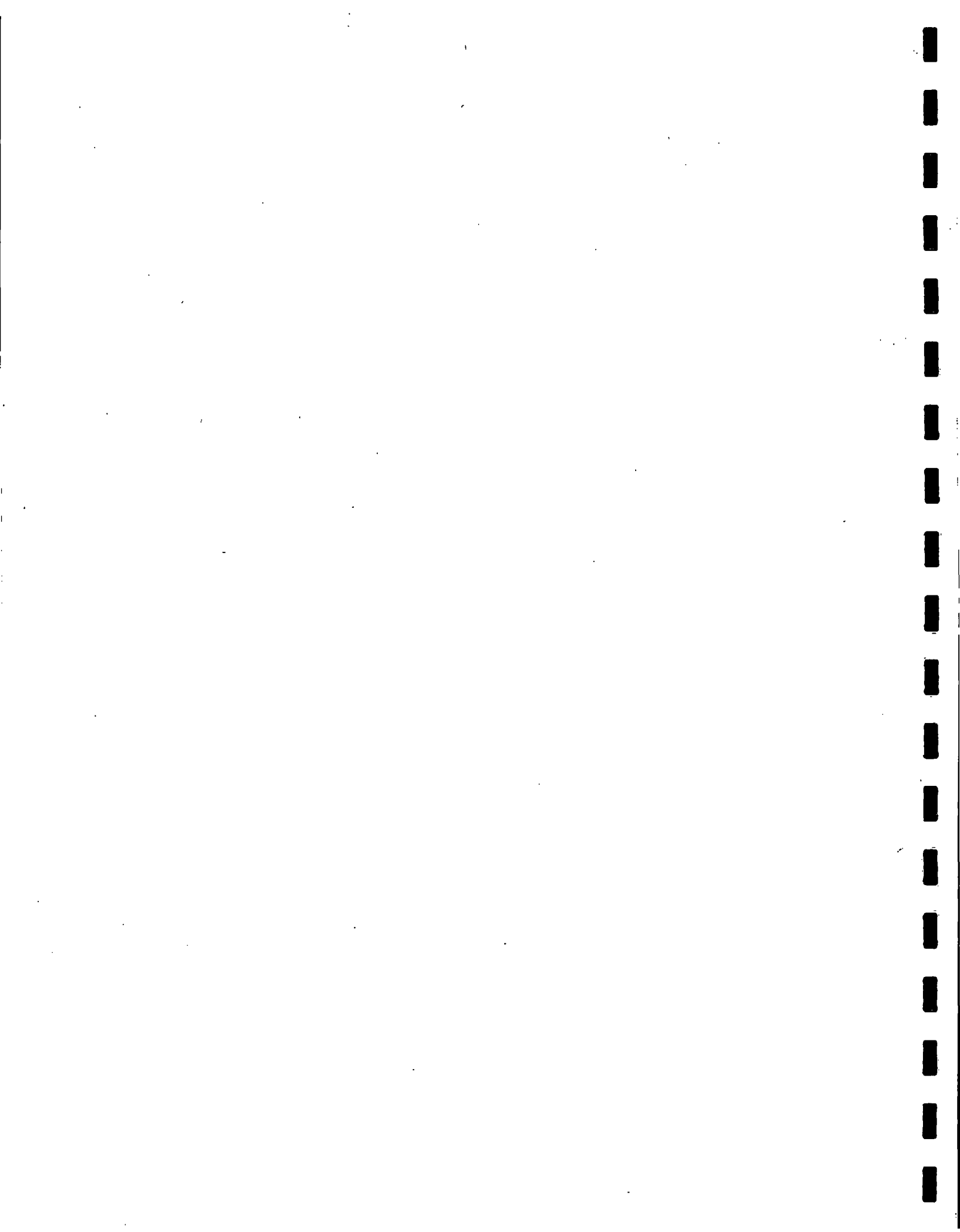
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## **B.1.0 INTRODUCTION**

The Health and Safety Plan (HASP) presented herein describes the health and safety procedures and emergency response guidelines to be implemented during the Removal Action Work Plan (Work Plan) and associated activities at the Sybill Inc. facility (Site) located in Detroit, Michigan. The Work Plan has been prepared for the removal activities and should be followed in conjunction with this HASP for all project activities. Figures 1.1 and 1.2 of the Work Plan present the Site Location and Site Plan, respectively.

The scope of work to be completed during the project activities include the following work activities:

- mobilization of construction facilities, material, equipment, and personnel necessary to perform the work;
- provision and maintenance of construction facilities and temporary controls;
- Site preparation including:
  - work zone/ property identification,
  - the provision of utilities,
  - construction of decontamination facilities, and
  - construction of staging facilities;
- provision of Site security;
- completion of an initial container inventory;
- determination of container integrity;
- identification, compatibility and characterization sampling of containerized material;
- completion of an initial compatibility screening of the containerized material;
- removal of visually compatible waste streams followed by focused compatibility testing on Site;
- removal, crushing, shredding or off-Site disposal of empty containers;
- determination of ownership and return of vendor owned containers;
- removal of intact containers, followed by overpacking or securing the containers, if necessary;
- collection into suitable lab packed containers of miscellaneous laboratory chemicals and small containers;
- collection into on-Site vacuum-trucks of contaminated bulk liquid waste in containment areas, pits, sumps, ASTs, and tankers;
- additional decontamination activities, including scraping and power washing of containment areas, pits, sumps, ASTs, and tankers;
- collection into drums of solid material and debris found in the vicinity of the containment area, pits, sumps, tanks, and tankers;
- disabling of tanks;

- investigation of sewer and underground manways and associated catch basins;
- sampling and analysis of consolidated waste streams to characterize the wastes for off-Site disposal;
- the transportation and disposal of waste material at appropriate disposal facilities in accordance with State and Federal regulations;
- removal of miscellaneous debris and disposal at appropriate off-Site facilities;
- RA closeout activities including:
  - surficial cleanup of tracked areas,
  - decontamination of Site equipment and facilities,
  - removal and disposal of stored wastewaters, and
  - demobilization of construction facilities and equipment from the Site.

During a portion of these activities, personnel may come in contact with both solid and liquid waste materials, which may contain hazardous substances. This HASP has been developed to minimize direct contact by site personnel with materials potentially having chemical presence by ensuring:

- i) that site personnel are not adversely exposed to the compounds of concern;
- ii) that public health and the environment are not adversely impacted by materials with elevated chemical presence which may potentially migrate outside of the work zone during project activities at the site;
- iii) compliance with applicable governmental and non-governmental (American Conference of Governmental Industrial Hygienists [ACGIH]) regulations and guidelines. In particular, the amended rules of the Occupational Safety and Health Administration (OSHA) for Part 1926 (Title 29 Code of Federal Regulations [CFR] Part 1926.65) will be implemented for all site work; and
- iv) initiation of proper emergency response procedures to minimize the potential for any adverse impact to site workers, the general public, or the environment.

For the purpose of this HASP, activities involving contact with materials with potentially elevated chemical presence will be considered contaminated operations requiring Personal Protective Equipment (PPE). A detailed description of the PPE required is presented in Section 6.1.

The applicability of this HASP extends to all personnel who will be on site, including State and Federal Agency personnel, Federal Agency contractors (e.g. Superfund Technical Assessment and Response Team), Conestoga-Rovers & Associates (CRA) employees (including CRA Services), contractors, subcontractors, and visitors to the site. Contractors and subcontractors who will work with CRA at the site will be required to

prepare and implement a HASP and provide all applicable Health and Safety Standard Operating Procedures (SOPs) for use by their site personnel. In addition, contractors and subcontractors will be responsible for the health and safety of their personnel.

All project activities at the site will be conducted in accordance with the provisions of an approved Site-specific HASP. A copy of the Site-specific HASP and employer-specific Standard Operating Procedures (SOPs) will be maintained on Site whenever activities are in progress.

#### **B.1.1 PROJECT ORGANIZATION**

The project activities will be organized as follows. CRA will provide oversight for the project and various environmental contractors and subcontractors will assist with project activities as necessary.

CRA will provide a Resident Engineer who will provide oversight for the day-to-day activities of the project contractors and subcontractors, liaison with EPA site representatives, waste confirmatory sampling, review of project submittals, and general coordination of Site activities. Additionally, the Resident Engineer will be responsible for ensuring compliance with the CRA site-specific HASP.

A Health and Safety Officer (HSO) will be appointed to the Site. The HSO will:

- i) be responsible for daily enforcement and monitoring of the HASP;
- ii) be responsible for assisting pre-construction training of all on-Site personnel with regard to this HASP and other safety requirements to be observed during Site work, including:
  - a) potential hazards,
  - b) personal hygiene principles,
  - c) personnel protective equipment,
  - d) respiratory protection equipment usage and fit testing,
  - e) emergency procedures dealing with fire and medical situations, and
  - f) heat stress principles;
  - g) Decontamination procedures and PPE requirements during decontamination procedures;
- iii) be responsible for alerting CRA prior to the Contractor starting any particularly hazardous work;

- iv) be responsible for the maintenance of separation of Exclusion Zone and Support Zone areas as described hereafter including maintenance of entry and exit logs and daily sign in sheets;
- v) maintenance of the emergency contingency plan found in Section 4.0;
- vi) conduct all on-Site air monitoring (see Section 6 for frequency of monitoring);
- vii) provide supervision for decontamination activities;
- viii) have authority to suspend work activity due to unsafe working conditions;
- ix) maintain the on Site Hazard Communication Program including copies of MSDSs for chemical containing products which have been brought to the Site;
- x) ensure that all drum/container handling procedures are in accordance with 29 CFR 1910.120 (j);
- xi) conduct daily safety meetings;
- xii) regularly verify that the route to the hospital from the Site has not been compromised by construction, etc.;
- xiii) have a minimum of 2 years site related working experience specific to the handling and excavation of containerized waste or contaminated soils;
- xiii) have a sound working knowledge of State and Federal occupational safety and health regulations; and
- xiv) have formal education and/or training in occupational safety and health.

The HSO will be certified in first aid and cardiopulmonary resuscitation.

These individuals will be responsible for ensuring that all contract specifications are met, including those related to Site health and safety.

## **B.2.0 SITE CHARACTERIZATION AND POTENTIALLY HAZARDOUS COMPOUNDS**

Previous site assessment and sampling of the site has identified the presence of known and unknown chemical compounds at the site. These include benzene, toluene, ethylbenzene, methyl ethyl ketone (MEK), xylene, styrene, arsenic, lead, chromium, hexane, acetone, hydrogen peroxide, propane, nitrogen, acenaphthene, acetylene, fluorene, phenanthrene, hydrogen, naphthalene, methyl naphthalene, aqueous sodium hydroxide, nitric acid, sulfuric acid, mineral spirits and unspecified acids and caustics. Table B.2.1 presents the exposure routes and exposure limits for the chemical compounds present at the site. These levels are set to protect the health of workers. It should be noted that there are drummed/containerized waste material that is of unknown origin on-Site, including potentially flammable or corrosive compounds.



### **B.3.0 BASIS FOR DESIGN**

Regulations set forth by OSHA in Title 29, Code of Federal Regulations, Parts 1910 and 1926 (29 CFR 1910 and 1926) form the basis of this HASP. Emphasis is placed on Sections 1926.65 (Hazardous Waste Operations and Emergency Response), 1910 Subpart I (Personal Protective Equipment), Subpart D (Occupational Health and Environmental Controls), and 1910 Subpart Z (Toxic and Hazardous Substances). In addition, current Threshold Limit Values (TLVs) formulated by the ACGIH have been considered in the development of the selection of PPE. Some of the specifications within this section are in addition to the OSHA regulations, and reflect the positions of the United States Environmental Protection Agency (USEPA), the National Institute for Occupational Safety and Health (NIOSH), and the United States Coast Guard (USCG) regarding safe operating procedures at hazardous waste sites.

The health and safety of the public and site personnel and the protection of the environment will take precedence over cost and schedule considerations for all project work.

#### **B.4.0 RESPONSIBILITIES AND ADMINISTRATION**

CRA will provide a Resident Engineer who will be responsible for any CRA health and safety issues. The Resident Engineer, and HSO shall be responsible for all decisions regarding operations and work stoppage due to health and safety considerations. The HSO will have prior experience in working at hazardous waste sites.

The on-site HSO responsibilities include:

- i) be responsible for daily enforcement and monitoring of the HASP;
- ii) supervision and enforcement of safety equipment usage, including the required use of extra equipment if appropriate
- iii) supervision and inspection of equipment cleaning; supervision of decontamination activities;
- iv) conduct the on-site personnel safety indoctrination session for potential hazards, personal hygiene principles, confined space entry procedures, all other SOPs, safety equipment usage, emergency procedures, and location of first aid kits and fire extinguishers, and identification of personnel trained in first aid and cardiopulmonary resuscitation (CPR);
- v) maintain Exclusion Zone (EZ) and Contaminant Reduction Zone (CRZ) work areas;
- vi) review and modify, and maintain the HASP amendments as more information becomes available or conditions warrant;
- vii) issue confined space entry and hot work permits as required;
- viii) authority to suspend work activity due to unsafe working conditions;
- ix) coordination of emergency procedures;
- x) be responsible for conducting the air monitoring and air sampling program;
- xi) ensure that all on-site personnel have obtained the required medical examination prior to arrival at the site, have met the OSHA training requirements, and have been fit tested for the respiratory equipment they may use;
- xii) maintain records to be kept on site and on site generated safety records, which includes fit testing;
- xiii) maintain the on-site Hazard Communication Program including copies of Material Safety Data Sheets (MSDSs);
- xiv) conduct brief daily safety meetings including improving or updates on work practices;
- xv) ensure compliance to OSHA's standards including the maintenance of OSHA 300 logs;
- xvi) administer the accident prevention program; and

- xvii) provide instruction to site personnel regarding operating, procedures, hazards, and safeguards of tools and equipment when necessary to perform their job.
- xviii) ensure that all drum/container handling procedures are in accordance with 29 CFR 1910.120 (j);
- xix) be responsible for alerting CRA prior to the Contractor starting any particularly hazardous work;

## **B.5.0 WORKER TRAINING AND EDUCATION**

A Site-specific Health and Safety Plan will be executed by the selected Contractor for work performed at the Site. The executed plan will address, at minimum, the requirements outlined in this Health and Safety Plan. A copy of the Site-specific Health and Safety Plan will be maintained on-Site during removal activities.

Prior to commencing site activities, a Health and Safety/Site Indoctrination Session will be presented. Attendance is mandatory for all personnel who will be or who are expected to be involved with project activities.

The training program will stress the importance that each attendee understands the basic principles of personnel protection and safety, be able to perform their assigned job tasks in a safe and environmentally responsible manner, and be prepared to respond in an appropriate manner to any emergency which may arise. The various components of the project HASP will be presented followed by an opportunity to ask questions to ensure that each attendee understands the HASP. Personnel not successfully completing this training program will not be permitted to enter or work in potentially contaminated areas of the site. Personnel successfully completing this training program shall sign an acknowledgement form, a copy of which is presented in Attachment A. In addition, daily "tailgate" safety meetings will take place each day prior to beginning the day's work. All site personnel will attend these safety meetings. The safety meetings will be documented with written sign-in sheets containing a list of topics discussed. Attachment B presents the form that will be used for this purpose.

This training will be given in addition to the basic training required under OSHA and is not intended to meet the requirements of 29 CFR 1926.65. Prior to working in or entering an EZ environment (as defined in Section 6.0), all personnel will be required to provide documentation to the Resident Engineer/HSO indicating successful completion of the training requirements of 29 CFR 1926.65. Records of such training will be maintained in Attachment C of the Site HASP.

## **B.6.0 PERSONAL PROTECTIVE EQUIPMENT (PPE)**

This section of the HASP describes the requirements for PPE and the specific levels of protection required for each work task to be conducted at the site during project activities. Basic PPE in all Site areas will consist of hard hats, safety glasses, and safety boots/shoes.

### **B.6.1 PROTECTION LEVELS**

Personnel will wear protective equipment when project activities involve potential exposure to chemicals from vapors, gases, or particulates that may be generated on site or when direct contact with potentially hazardous substances may occur. Chemical resistant clothing protects the skin from contact with skin-destructive and absorbable chemicals. Respirators protect lungs, the gastrointestinal tract, and if a full-face respirator is worn, the eyes, against airborne toxicants. Respiratory protection levels will be based on the real-time air monitoring results during initial drum handling and the action levels that are presented in Section 6.5. Analytical results of initial sampling of unknown materials will also be incorporated into the proper selection of PPE.

Protection levels are selected based upon the following:

- i) measured concentrations of the site chemicals and expected concentrations in the ambient atmosphere compared to allowable exposure levels;
- ii) potential for exposure to chemicals in air, splashes of liquids, or other contact due to the nature of work tasks;
- iii) compliance to OSHA's lead standards;
- iv) site chemical toxicity, route of exposure, and chemical matrix; and
- v) real time air monitoring results during initial drum handling of unknown material.

The specific protection levels to be employed at the Site for each work task are listed in Table B.6.1. Air monitoring action levels are listed in Table B6.2. All project activities conducted at the site will require the use of one of the following levels of PPE.

#### **Level B:**

- i) supplied air respirator (Mine Safety and Health Administration [MSHA]/NIOSH approved). Respirators may be positive pressure-demand, self-contained breathing apparatus (SCBA) or positive pressure-demand airline respirator (with

escape bottle for Immediately Dangerous to Life and Health [IDLH] or potential for IDLH atmosphere).

- ii) polycoated tyvek® or saranex® coveralls;
- iii) steel toe work boots and disposable boot covers or rubber boots;
- iv) disposable nitrile inner gloves;
- v) outer nitrile work gloves;
- vi) hearing protection as necessary; and
- vii) hard hat.

Level C:

- i) tyvek® coveralls (polycoated tyvek® when handling or working with liquids [e.g., decontamination]);
- ii) steel toe work boots and disposable boot covers or rubber boots;
- iii) disposable nitrile inner gloves;
- iv) outer nitrile inner gloves;
- v) half-face or full-face air purifying respirator (APR), equipped with appropriate cartridges;
- vi) Safety glasses (where half-face APR is used);
- vii) hearing protection as necessary; and
- viii) hard hat.

Modified Level D:

- i) tyvek® coveralls (polycoated tyvek® when handling or working with liquids);
- ii) steel toe work boots;
- iii) disposable nitrile inner gloves;
- iv) outer nitrile work gloves;
- v) safety glasses;
- vi) splash shields as necessary;
- vii) hearing protection as necessary; and
- viii) hard hat.

Level D:

- i) standard work uniform or coveralls;
- ii) steel toe work boots;
- iii) gloves as necessary;
- iv) safety glasses;
- v) splash shield as needed;
- vi) hearing protection as necessary; and
- vii) hard hat.



PPE will be maintained in a clean sanitary condition and ready for use. Disposable coveralls shall be discarded when torn and as an employee leaves the EZ. Hard hats shall be thoroughly cleaned after leaving the EZ. Respirators shall be cleaned after each day's use and cartridges discarded. A sufficient quantity of potable water shall be supplied for washing, cleaning PPE, and drinking. A potable water supply for washing and cleaning PPE will be maintained adjacent to the decontamination area described in Section 9.0. Fresh potable water for drinking will be supplied on a daily basis and be maintained at a location removed from the active work area.

#### **B.6.2      REASSESSMENT OF PROTECTION LEVELS**

Protection levels provided by PPE selection shall be upgraded or downgraded based upon a change in Site conditions or the review of the results of air monitoring.

When a significant change occurs, the hazards shall be reassessed. Some indicators of the need for reassessment are:

- i) commencement of a new work phase;
- ii) change in job tasks during a work phase;
- iii) change of season/weather;
- iv) when temperature extremes or individual medical considerations limit the effectiveness of PPE;
- v) chemicals other than those expected to be encountered are identified;
- vi) change in ambient levels of chemicals; and
- vii) change in work scope which effects the degree of contact with areas of potentially elevated chemical presence.

All proposed changes to protection levels and PPE requirements will be reviewed and approved prior to their implementation by the Resident Engineer and HSO.

#### **B.6.3      DURATION OF WORK TASKS**

The duration of project activities involving the usage of PPE will be established by the HSO based upon ambient temperature and weather conditions, the capacity of personnel to work in the designated level of PPE (heat stress and cold stress, see Section 12.3 - Environmental Control), and limitations of the protective equipment



(i.e., ensemble permeation rates, life expectancy of air-purifying respirator cartridges, etc.). As a minimum, rest breaks will be observed at the following intervals:

- i) 15 minutes midway between shift startup and lunch;
- ii) ½-hour for lunch; and
- iii) 15 minutes in the afternoon, between lunch and shift end.

All rest breaks will be taken in a clean area (e.g., support zone) after full decontamination and PPE removal. Additional rest breaks will be observed, based upon the heat stress monitoring guidelines presented in the CRA Health and Safety SOPs.

#### **B.6.4 LIMITATIONS OF PROTECTIVE CLOTHING**

PPE ensembles designated for use during project activities have been selected to provide protection against chemicals at known or anticipated concentrations in the waste materials. However, no protective garment, glove, or boot is chemical-proof, nor will it afford protection against all chemical types. Permeation of a given chemical through PPE is a complex process governed by the chemical concentrations, environmental conditions, physical condition of the protection garment, and the resistance of a garment to a specific chemical; chemical permeation may continue even after the source of the chemical has been removed from the garment.

In order to obtain optimum usage from PPE, the following procedures are to be followed by all site personnel using PPE:

- i) when using disposable coveralls, don a clean, new garment after each rest break or at the beginning of each shift;
- ii) inspect all clothing, gloves, and boots both prior to and during use for:
  - a) imperfect seams,
  - b) non-uniform coatings,
  - c) tears,
  - d) poorly functioning closures; and
- iii) inspect reusable garments, boots, and gloves both prior to and during use for:
  - a) visible signs of chemical permeation,
  - b) swelling,
  - c) discoloration,
  - d) stiffness,
  - e) brittleness,

- f) cracks,
- g) any sign of puncture, and
- h) any sign of abrasion.

Reusable gloves, boots, or coveralls exhibiting any of the characteristics listed above will be discarded. PPE used in areas known or suspected to exhibit elevated concentrations of chemicals will not be reused.

Additional PPE usage guidelines are as follows:

- i) ankles/wrists will be secured tightly with the use of duct tape;
- ii) prescription eyewear used on site shall be safety glasses equipped with side shields when full-face respirators are not required;
- iii) all EZ workers will have received training in the usage of a half-face and/or full-face air purifying respirators and SCBA which may be required in an emergency;
- iv) steel toe leather footwear shall be covered with neoprene overboots prior to entering the EZ and immediately upon entering the CRZ; and
- v) safety footwear and hard hats are to be worn by site personnel at all times.

EZ personnel also carry certain responsibilities for their own health and safety, and are required to observe the following safe work practices:

- i) familiarize themselves with this HASP;
- ii) use the "buddy system" when working in a contaminated operation;
- iii) use the safety equipment in accordance with training received, labeling instructions, and common sense;
- iv) maintain safety equipment in good condition and proper working order;
- v) refrain from activities that would create additional hazards (i.e., smoking, eating, etc., in restricted areas, leaning against dirty, contaminated surfaces);
- vi) smoking, eating, and drinking will be prohibited except in designated areas. These designated areas may change during the duration of the project to maintain adequate separation from the active work area(s). Designation of these areas will be the responsibility of the HSO; and
- vii) soiled disposable outerwear shall be removed and placed into a covered container prior to washing hands and face, eating, using lavatory facilities, or leaving the Site.

## **B.6.5      RESPIRATORY PROTECTION PROGRAM**

Prior to arriving at the site, all on-site personnel will have received training in the use of, and have been fit tested for the air purifying respirator that they may need to wear. All on-site personnel will be required to comply with their employer specific written respiratory protection program developed in accordance with OSHA 29 CFR 1910.134. Cartridges to be used with full-facepiece APRs will be made by the same manufacturer as the facepieces in accordance with OSHA regulations. All APRs will be provided with combination organic vapor, acid gases and high efficiency particulate cartridges or other required cartridges.

Realtime instrument action levels for organic vapors and particulate to determine the level of respiratory protection necessary during Project activities are based on the concentration of the site chemicals measured within the breathing zone. The action levels and appropriate respiratory protection for these Site activities are as follows:

<i><b>Sustained Organic Vapor Reading Above Background Within Worker Breathing Zone in Parts Per Million (ppm)</b></i>	<i><b>Action Taken</b></i>
0 or Background	Half- or Full-Face Respirator Available
1-10 above background	Wear Half or Full Face Respirator
10-250 above background	Must Wear Supplied Air Respirator
>250 above background	Cease Operations/ Additional Engineering Controls

Prior to commencing work, both the Contaminant Reduction Zones and the Exclusion Zones will be monitored with an organic vapor analyzer (OVA) [flame ionizing detector (FID)] or photoionization device (PID) to document the level of organic vapors present.

In the absence of additional air monitoring information, the action levels presented will be determined by monitoring with an OVA/PID, and the HSO will determine the level of respiratory protection for Site activities.

Waste characterization and compatibility sampling personnel who are required to handle intact drums/containers of unknown content will be at a minimum Level B protection until the contents and associated respiratory hazards and air monitoring results, if any, are known. Subsequent handling of characterized containerized materials will be performed under the appropriate level of respiratory protection to be determined

by the HSO based on the characterization data in consultation with CRA and the U.S. EPA OSC. The handling of overpacked/repacked waste containers during on-Site transportation and at the staging pad (container closed) will require the use of Level D protection if air monitoring results indicate that the level of protection is appropriate. Floor cleaning activities will be conducted in minimum Level C protection.

Personal and perimeter air monitoring data will be collected. Data generated by this sampling will also be used to modify on-Site activities or to determine if the level of respiratory protection may require adjustment.

The HSO will be responsible for implementing, maintaining and enforcing the respirator program.

On-Site personnel unable to pass a respirator fit test will not enter or work in the Exclusion Zones or Contaminant Reduction Zones.

All on-Site personnel will be required to comply with their employer specific respiratory protective program developed in accordance with OSHA 29 CFR 1910.134.

All efforts will be made to implement additional engineering controls to minimize the need to wear a supplied air respirator. If the ambient concentrations of organic vapors are due to identifiable substances, the level of respiratory protection may be altered by the HSO.

#### **B.6.6      SITE CONTROL**

Visitors may gain access to the other side of the fence only if they are escorted. The intention is to keep them out of the EZ. Designated work areas will be set up as appropriate inside the fence during the site field activities, as required. Visitors will not be permitted entry to active work areas at the Site. However, U.S. EPA and the Contractor may allow visitors to the Site if absolutely necessary. All visitors must be OSHA trained in order to enter the exclusion zone or contaminant reduction zone. It is U.S. EPA's and the Contractor's responsibility to ensure that all visitors are properly trained. The purpose of these procedures is to limit access to areas with potentially elevated chemical presence, and prevent the migration of potentially hazardous materials into adjacent clean areas. These areas are described in the following:

- i) The Exclusion Zone (EZ) is the area immediately surrounding the active work area. Sufficient area will be provided for efficient movement of personnel and equipment as well as chemical control. Boundaries are modifiable depending on operational requirements. The HSO will be responsible for maintaining the boundaries of this area. Personnel entering this area are required to wear the PPE as defined previously. A wind direction indication device (i.e., flagging, windsock, etc.) will be mounted in the area of any EZ during site activities. All personnel (including visitors) entering the EZ or CRZ using respiratory protection must have successfully passed a respirator fit test in accordance with OSHA 29 CFR 1910.134. Documentation of fit testing is the responsibility of each employer.

In the event that unauthorized personnel enter the EZ, work will stop. Work will not resume until the unauthorized personnel have been removed from the EZ or have been moved to an acceptable on-site area. A log of all visitors to the site, including those entering the EZ, will be maintained.

The hazards presented to workers conducting general Exclusion Zone activities (excluding the handling of intact waste containers) will include potential inhalation and dermal contact with Site substances in addition to general construction related hazards. There will also be a cut and puncture hazard should metallic debris be encountered. The use of respiratory protection will also increase the potential for slip and trip type accidents to occur.

Safety equipment and apparel as required for general work and surface removal work within the Exclusion Zone will be generally completed at Level C protection based on air monitoring results, and drum characterization results, which will consist of the following;

- individually assigned full-facepiece air purifying respirators (APRs) (NIOSH approved), with dual cartridges for organic vapors, acid gases, and particulates (such as MSA GME-P100 or equivalent);
- chemical-resistant disposable coveralls (Saranex®);
- latex and/or cotton inner gloves;
- nitrile outer gloves;
- work boots with steel toe and shank;
- chemical-resistant overboots or booties; and
- hard hat.

The handling of intact waste containers of unknown content during overpacking/repacking and sampling will be conducted under Level B protection. Subsequent handling once the contents and associated respiratory hazards, if any, are known will be performed under the appropriate level of personal protection to be determined by the HSO in consultation with CRA and the U.S. EPA OSC. The handling of overpacked/repacked waste containers during transport to and at the staging pads will be conducted under Level D protection, if air monitoring results indicate this level, protection is appropriate.

All personnel involved in the handling or sampling of waste containers of unknown content will conform to the following PPE requirements:

- disposable, hooded, chemically-resistant suits (Saranex®);
- open circuit, positive pressure, self-contained breathing apparatus (SCBA) or Type C hoseline, with pressure/demand regulator with escape unit;
- chemically protective outer gloves;
- inner gloves, thin nitrile or latex;
- safety shoes or boots;
- disposable rubber, chemical-resistant overboots, butyl rubber or neoprene;
- hard hats;
- working uniform complete with full length pants, long sleeve shirt, socks and underwear; and
- two-way radio (intrinsically safe).

Additional PPE usage guidelines to be implemented include:

- prescription eyeglasses in use on the Site will be safety glasses;
- all disposable or reusable nitrile, latex and/or cotton gloves worn on the Site will be changed, decontaminated or discarded at the end of each day;
- during periods of respirator usage, respirator filters will be changed daily;
- on-Site personnel who have not passed a respirator fit test will not be permitted to enter or work in the Exclusion Zone. Personnel will not be permitted to have facial hair which may interfere with a proper fit of the respirator;
- all PPE worn on Site will be decontaminated or discarded at the end of each work day;
- duct tape will be used to ensure that disposable coveralls and gloves are tightly secured when personnel are working within the Exclusion Zone; and

- no watches, rings or other accessories will be permitted during drum handling, and sampling activities.

The HSO will perform air monitoring to document the appropriateness of the level of protection and consult with CRA and U.S. EPA, should modifications to the level of protection be deemed necessary.

Off-Site transport drivers will only be required to have available the respiratory protection component of the Level C gear as they will not be permitted out of their vehicles when in the Exclusion and Contaminant Reduction Zones.

- ii) The Contaminant Reduction Zone (CRZ) will provide a location for removal of PPE which has contacted material with elevated chemical presence and final removal and decontamination of personnel and equipment. Supplemental safety equipment, such as fire extinguishers, portable eyewash, and extra quantities of PPE may be stored in this area. The order in which safety equipment is to be donned is as follows:

- tyvek® suit;
- rubber boot;
- gloves;
- respirator (if required); and
- hard hat.

The following order applies when removing safety equipment:

- wash off boots and outer gloves prior to removal;
- tyvek® suit;
- hard hat;
- respirator; and
- inner gloves.

- iii) The Support Zone (SZ) is situated in clean areas where there is a minimal risk of encountering hazardous materials or conditions. PPE beyond standard construction safety equipment is therefore not required.

## **B.7.0 ACTIVITY HAZARD/RISK ANALYSIS**

The Site is comprised of an abandoned office building and process building, a pump house, boiler house, and a water tower. The potential hazards to personnel working at the Site have been identified as chemical contamination and physical hazards. This section identifies the general hazards associated with specific project activities and presents the documented or potential health and safety hazards that exist at the site. Every effort will be made to reduce or eliminate these hazards. Those which cannot be eliminated must be guarded against by use of engineering controls and/or PPE. Table B.7.1 presents the anticipated hazards/risks and hazard controls.

In addition to the chemical hazards presented in Section 2.0 of this HASP, physical hazards including slippery surfaces, poor or no lighting, poor structural conditions of site buildings, potential confined spaces, the use of heavy equipment, the use of decontamination equipment, and potential heat and cold stress exist at the site. It will be the responsibility of each on-site contractor and their personnel to identify the physical hazards posed by the various site project activities and implement preventative and corrective action.

### **B.7.1 CHEMICAL EXPOSURE**

The chemical health and safety hazard associated with this project is the possible inhalation of or direct contact with volatile organic compounds (VOCs) or other chemicals contained in drums/containers and on contaminated surfaces. Several of the drums/containers contain materials of unknown origin. Preventing exposure to toxic chemicals is a primary concern.

Chemical substances can enter the unprotected body by inhalation, skin absorption, ingestion, or through a puncture wound (injection). A contaminant can cause damage at the point of contact or can act systematically, causing a toxic effect at a part of the body distant from the point of initial contact.

Chemical exposures are generally divided into two categories: acute and chronic. Symptoms resulting from acute exposures usually occur during or shortly after exposure to a sufficiently high concentration of a chemical. The concentration required to produce such effects varies widely from chemical to chemical. The term "chronic exposure" generally refers to exposures to "low" concentrations of a contaminant over a long period of time. The "low" concentrations required to produce symptoms of chronic exposure depend upon the chemical, the duration of each exposure, and the number of



exposures. For a given chemical, the symptoms of an acute exposure may be completely different from those resulting from chronic exposure.

For either chronic or acute exposure, the toxic effect may be temporary and reversible, or may be permanent (disability or death). Some chemicals may cause obvious symptoms such as burning, coughing, nausea, tearing eyes, or rashes. Other chemicals may cause health damage without any such warning signs (this is a particular concern for chronic exposures to low concentrations). Health effects such as cancer or respiratory disease may not become manifest for several years or decades after exposure. In addition, some toxic chemicals may be colorless and/or odorless, may dull the sense of smell, or may not produce any immediate or obvious physiological sensations. Thus, a worker's senses or feelings cannot be relied upon in all cases to warn of potential toxic exposure.

The effects of exposure not only depend on the chemical, its concentration, route of entry, and duration of exposure, but may also be influenced by personal factors such as the individual's smoking habits, alcohol consumption, medication use, nutrition, age, and sex.

An important exposure route of concern at the site is inhalation. The lungs are extremely vulnerable to chemical agents. Even substances that do not directly affect the lungs may pass through lung tissue into the bloodstream, where they are transported to other vulnerable areas of the body. Some toxic chemicals present in the atmosphere may not be detected by human senses (i.e., they may be colorless, odorless, and their toxic effects may not produce any immediate symptoms). Respiratory protection is therefore extremely important if there is a possibility that the work site atmosphere may contain such hazardous substances. Chemicals also can enter the respiratory tract through punctured eardrums. Where this is a hazard, individuals with punctured eardrums should be medically evaluated specifically to determine if such a condition would place them at an unacceptable risk and preclude their working at the task in question.

Direct contact of the skin and eyes by hazardous substances is another important route of exposure. Some chemicals directly injure the skin. Some pass through the skin into the bloodstream where they are transported to vulnerable organs. Skin absorption is enhanced by abrasions, cuts, heat, and moisture. The eye is particularly vulnerable because airborne chemicals can dissolve in its moist surface and be carried to the rest of the body through the bloodstream (capillaries are very close to the surface of the eye). Wearing protective equipment, not using contact lenses in chemical atmospheres (since they may trap chemicals against the eye surface), keeping hands away from the face, and

minimizing contact with liquid and solid chemicals can help protect against skin and eye contact.

Although ingestion should be the least significant route of exposure at the site, it is important to be aware of how this type of exposure can occur. Deliberate ingestion of chemicals is unlikely, however, personal habits such as chewing gum or tobacco, drinking, eating, smoking cigarettes, and applying cosmetics at the site may provide a route of entry for chemicals.

The last primary route of chemical exposure is injection, whereby chemicals are introduced into the body through puncture wounds (i.e., by stepping or tripping and falling onto contaminated sharp objects). Wearing safety shoes, avoiding physical hazards, and taking common sense precautions are important protective measures against injection.

When handling drums containing or suspected of containing shock-sensitive or reactive wastes, the following special precautions should be followed:

- All non-essential employees shall be removed from the area of transfer.
- Material handling equipment shall be fitted with explosion containment devices or protective shields to protect operators.
- An audible notification system will be used to signal the beginning and end of the procedure.
- Continuous communications will be maintained between the employee in charge of the operation and the HSO during the operation.
- Pressurized drums shall not be moved until the cause of the excessive pressure is determined and appropriate measures are implemented.
- All drums and containers containing packaged laboratory waste lab packs shall be considered shock-sensitive until proven otherwise.
- Work will proceed in clear, dry weather.

#### **B.7.2      WORKSITE LIGHTING**

There are currently no known active utilities at the Site. For this reason there is currently poor to no lighting available within the facility creating a significant hazard for slips, trips and falls. Supplemental temporary lighting will be utilized in all active work zones (EZ, CRZ, SZ) as required. The lighting will be provided to meet the OSHA

requirements (29 CFR 1910.120(M)) for illumination. These requirements are outlined in Table B.7.2.

## **B.8.0 AIR MONITORING**

Air monitoring will be performed during project activities to ensure that all site personnel and the surrounding community will not be adversely impacted during project activities. This section of the site-specific HASP presents the requirements for conducting active work area and personnel air monitoring/sampling at the site.

During the progress of site activities monitoring of organic vapors, combustible gas levels and particulate will be taken by the HSO. Additionally, oxygen, combustible gas levels, carbon monoxide, and hydrogen sulfide (for sewer entry) will need to be taken if personnel enter into any confined space. CRA will rely on/require approved construction contractor personnel to complete all of the necessary air sampling/monitoring.

In addition to a windsock, or equivalent, the following air monitoring instrumentation will be used for this purpose:

- i) a PID or OVA detector;
- ii) a combination oxygen/combustible gas/carbon monoxide/hydrogen sulfide instrument; and
- iii) a routine aerosol monitor (MIE Miniram or equivalent).

All monitoring equipment will be calibrated on a daily basis in accordance with the manufacturer's guidelines, and such calibrations will be recorded in the site daily log book along with the prevailing wind direction as indicated by the windsock. Results of all daily air monitoring also will be recorded in the site daily log book.

Air monitoring will be conducted continuously during all drum handling activities in the breathing zone of workers in the EZ or as deemed necessary by the HSO based on site-specific conditions. Background measurements immediately upwind of the EZ will be taken before activities commence. Respiratory action levels for organic vapors are discussed in Section 6.5.

Immediately upon identifying sustained elevated levels of organic vapors greater than 250 ppm within the Work Zone, the air monitoring results will be reported to the Resident Engineer and HSO and work activities will be shut down. The HSO will determine the cause of the sustained elevated levels of organic vapors and alternate work methods or engineering controls will be implemented to rectify the release of elevated concentrations of organic vapors.

Similarly, upon identifying sustained particulate levels greater than 2 mg/m<sup>3</sup>, the air monitoring results will be reported to the Resident Engineer and HSO and work activities will be shutdown. The HSO will determine the cause of the sustained elevated levels of particulate and alternate work methods or engineering controls will be implemented to rectify the release of elevated concentrations of organic vapors.

Monitoring for oxygen and combustible gas levels will be continuous during drum handling activities conducted according to the confined space entry permit if personnel have to enter into any confined space.

#### **B.8.1     REAL TIME AIR MONITORING**

Real-time air monitoring will be conducted using a PID/OVA, oxygen/combustible gas meter, and aerosol monitor which have been appropriately calibrated. OVA readings will be taken by the Contractor at a minimum frequency of once every two hours during activities that involve potential exposure to contaminated materials and continuously during initial drum handling activities. Aerosol readings will be taken periodically during activities involving potential dust emissions and any work with acids and/or bases.

If actual field operations reveal that bi-hourly sampling is not practical or necessary, adjustments may be made after consultation between the HSO, CRA and the U.S. EPA OSC. Such modifications will be documented in an amendment form to be approved by all the parties involved.

If, during the real-time monitoring, an unexplained OVA reading of greater than 1 ppm above background ("background" will mean the readings obtained at an upwind location which is not being impacted by Site activities) is sustained for a duration of sixty seconds, the Contractor will review and modify the perimeter of the EZ or work procedures at the Site to minimize the potential of air emission levels greater than 1 ppm above background (i.e. the perimeter action level).

Similarly, if during real-time monitoring, an unexplained aerosol reading of greater than 0.2 mg/m<sup>3</sup> above background ("background" will mean readings obtained at an upwind location which is not being impacted by Site activities) is sustained for a duration of 60 seconds, the Contractor will review and modify the perimeter of the EZ or work procedures at the Site to minimize the potential of air emission levels greater than 0.2 mg/m<sup>3</sup> above background (i.e. the perimeter action level).

A combustible gas meter will be used to monitor the atmosphere for combustible gases. Table B.6.2 outlines the actions to be taken for the various levels of percent Lower Explosive Limit (LEL) encountered.

The Contractor will monitor the area of active work in the breathing zone to evaluate requirements for respiratory protection. These data will be evaluated to determine when work activities need to be modified or shut down due to poor air quality.

#### **B.8.2      BACKGROUND MONITORING**

Background monitoring for total organic vapors using real-time monitoring will be conducted at the beginning of each workday. Any departures from general background will be reported to CRA who will, in conjunction with the HSO and the U.S. EPA OSC, determine the cause of the deviation and need to adjust Site operations.

During this period of time, background readings will also be collected with an aerosol meter, combustible gas and oxygen meter to establish baseline conditions prior to removal of the drums.

#### **B.8.3      CALIBRATION AND DATA REPORTING**

Calibration of air monitoring equipment will be completed on a daily basis in accordance with the manufacturer's specifications.

CRA will be immediately advised when results indicate:

- required modifications to existing Site protocols;
- excessive exposure to employees; and
- possibility of off-Site migration of airborne organic vapors and/or particulate.

Results will be reported orally to CRA immediately if they require a decision on Site operations or daily when no excursions are reported. Written data sheets detailing monitoring results will be prepared and maintained by CRA.

## **B.9.0 DECONTAMINATION PROCEDURES**

In general, everything that enters the EZ at the site must either be decontaminated or properly discarded upon exit from the EZ. All personnel, including any State and local officials, must enter and exit the EZ through the decontamination area. Prior to demobilization, potentially contaminated equipment will be decontaminated and inspected by the HSO before it is moved into the clean zone.

The type of decontamination solution to be used is dependent on the type of chemical hazards. The decontamination solution for this Site is Liquinox or an equivalent low phosphate detergent/soap for equipment and for any reusable PPE. MSDS for Liquinox and all other chemical containing products will be maintained on Site by the HSO.

### **B.9.1 EQUIPMENT DECONTAMINATION PROCEDURES**

All equipment must be decontaminated within the CRZ or on a decontamination pad by a high pressure steam washer upon exit from the EZ. All waste transport vehicles must be inspected and clean prior to leaving the site. Decontamination procedures should include: knocking soil/mud from machines; water rinsing using a solution of water and Liquinox; scraping and brushing with long-handled brushes to remove remaining soils and a final water rinse. Particular attention should be paid to tire treads, equipment tracks, springs, joints, sprockets, and under carriages. Equipment will be allowed to air dry in a clean zone before being moved from the site or travelling onto clean areas. Personnel shall wear Level C or Modified D protection when decontaminating equipment. Modified D protection may be used if authorized by the HSO. Runoff and sediments will be collected and stored until appropriate disposal/treatment arrangements are made. Appropriate measures (i.e., wind shields) will be taken to minimize the drift of mist and spray during decontamination. Following decontamination and prior to equipment removal from the site or travel on clean areas, each piece of equipment will be inspected by the CRA Resident Engineer and/or the HSO to ensure that the equipment has been properly cleaned. This inspection shall be included in the site log book.

In general, equipment decontamination pads or areas should be installed and operated under the following guidelines:

- i) Sized for the width and weight of the heaviest equipment expected, leaving sufficient room for decontamination equipment, personnel, and waste fluid storage drums.

- ii) Provide an impermeable barrier capable of containing all decon liquids.
- iii) Durably constructed to withstand the wear and tear of equipment tires/tracks.
- iv) Provided with a low point sump where all decon fluids can be collected and pumped out.
- v) Be constructed such that a minimum amount of materials will require special disposal when the decontamination pad is decommissioned. The use of granular fills or stone as the primary load-bearing surface should be avoided.
- vi) The length of the decontamination pad need not be sufficient to contain the entire vehicle. The vehicle can be decontaminated in sections as it passes over the pad.
- vii) If possible, vehicle access into the work zone should be made around the decontamination pad rather than over it. This will reduce the wear and tear on the pad. If such access is made possible, the pad should remain blocked whenever it is not in use.

An equipment decontamination inspection record will be maintained onsite, which includes:

- equipment descriptions with identification numbers or license plates;
- time and date entering decontamination facility;
- time and date exiting the decontamination facility; and
- name of inspector(s) with comment stating that decontamination was performed and completed.

#### **B.9.2 PERSONNEL DECONTAMINATION PROCEDURES**

Personnel decontamination will be completed in accordance with the CRA Health and Safety SOP for personnel decontamination. Washwater and sediments will be collected and stored with any runoff water collected for later treatment/disposal. PPE, trash, etc. within the CRZ will be sent off-site for disposal. It will be kept separate from trash generated in clean areas of the Site. The general guidelines for this are described in Section 6.6.



## **B.10.0 GENERAL SAFETY AND PERSONAL HYGIENE**

1. Eating at the site is prohibited except in specifically designated areas. Designation of eating areas will be the responsibility of the HSO. The location of these areas may change during the duration of the project to maintain adequate separation from the active work area(s).
2. Smoking at the site is strictly prohibited except in specifically designated areas.
3. Individuals getting wet to the skin with effluent from the washing operation must wash the affected area immediately. If clothes in contact with skin are wet, then these must be changed.
4. Hands must be washed with soap and water before eating, drinking, smoking, and before using toilets.
5. All disposable coveralls and soiled gloves will be placed in covered containers at the end of every shift or sooner, if deemed necessary by the HSO. Wastes will be stored until proper disposal arrangements have been made.
6. Personnel working on site will not be permitted to wear facial hair that interferes with the mask-to-face seal on air-purifying respirators.

### **B.10.1 SAFETY MEETINGS**

The HSO will conduct weekly safety meetings which will be mandatory for all Site personnel. The meetings will provide refresher courses for existing equipment and protocols, and will examine new Site conditions as they are encountered. The HSO will also conduct daily informal safety refresher briefings before work commences at the Site each day.

Additional safety meetings will be held on an as required basis.

Should any unforeseen or Site-peculiar, safety-related factor, hazard, or condition become evident during the performance of work at the Site, the Contractor will inform CRA immediately. In the interim, the Contractor will take prudent action to establish and maintain safe working conditions and to safeguard employees, the public, and the environment.

No visitors or personnel will be allowed to enter the Exclusion Zone or Contaminant Reduction Zone unless they have the prior approval of the HSO and CRA.

#### **B.11.0 MEDICAL SURVEILLANCE**

In accordance with the requirements detailed in 29 CFR 1926.65, 29 CFR 1926.62, and 29 CFR 1910.134, all site personnel who will come in contact with materials with potentially elevated chemical presence will have received, within 1 year prior to starting field activities, medical surveillance by a licensed physician or physician's group. standard, 29 CFR 1926.62.

Medical records for all on-site personnel will be maintained by their respective employers. The medical records will detail the tests that were taken and will include a copy of the consulting physician's statement regarding the tests and the employee's suitability for work.

The medical records will be available to the employee or his/her designated representative upon written request, as outlined in 29 CFR 1910.1020.

Each employer will provide certifications to the Resident Engineer that its personnel involved in site activities will have all necessary medical examinations and will have obtained medical certification prior to commencing work which requires respiratory protection or potential exposure to hazardous materials. Personnel not obtaining medical certification will not perform work within the CRZ and EZ. Copies of such certification will be maintained with the on-Site HASP as Attachment C.

Interim medical surveillance will be completed in accordance with 29 CFR 1926.62 or if an individual exhibits poor health or high stress responses due to any Site activity or when accidental exposure to elevated concentrations of chemicals occur.

## **B.12.0 ENVIRONMENTAL CONTROL PROGRAM**

This section of the HASP outlines measures to be implemented at the site to prevent hazards associated with environmental conditions.

### **B.12.1 WEATHER MONITORING**

The HSO or Site Superintendent will be responsible for checking weather forecasts for the next day and week of work to provide advance notification of any severe weather conditions. Severe weather conditions (e.g., heavy rains, lightning) may cause unsafe conditions at the site and in some situations work may have to be stopped.

### **B.12.2 RAIN AND SNOW**

Excessive amounts of precipitation may cause potential safety hazards for all work tasks. The hazards would be most commonly associated with slipping, tripping, or falling due to slippery surfaces and further hazards are detailed by work task (Table B.7.1).

Severe weather conditions will result in work stoppage and the implementation of further emergency measures, as described in the CRA Health and Safety SOP.

### **B.12.3 TEMPERATURE**

The construction activities are expected to be conducted this Summer and Fall. Low and high temperatures may be experienced which require measures to be implemented to prevent health and safety hazards from occurring. Potential hazards arising from temperature extremes are heat stress and cold exposure.

The potential hazard due to worker heat stress is particularly important if high protection levels of PPE are in use (e.g., respirators). A detailed monitoring program and prevention measures to implement to reduce heat stress are detailed in CRA Health and Safety SOP. It is the responsibility of the HSO to determine which measures are appropriate to implement to prevent heat stress; these will depend largely on daily site conditions.

Exposure to cold is similar to heat stress in that the HSO must determine the appropriate preventative measures to implement. Some of the measures which may be implemented include: more frequent breaks, additional clothing, and partial enclosure of work areas. Detailed cold exposure prevention measures are also included in CRA Health and Safety SOPs.

#### **B.12.4     WIND**

High winds may be encountered at the Site and these can cause hazards that may affect site personnel health and safety. Preventative measures that will be implemented if necessary are as follows:

- i)     restricted site activity;
- ii)    battering down light equipment or building materials;
- iii)   partially enclosing work areas; and
- iv)    reduction or stoppage of work activities.

### **B.13.0 CONFINED SPACE ENTRY PROCEDURE**

A confined space provides the potential for unusually high concentrations of contaminants, explosive atmospheres, oxygen deficient atmospheres, limited visibility, and restricted movement. This section establishes requirements for safe entry into, continued work in, and safe exit from confined spaces. Additional information regarding confined space entry can be found in 29 CFR 1926.21, 29 CFR 1910.146, and NIOSH-106. Entry into a confined space will only be undertaken after remote methods have been tried and found not to be successful. If confined space entry is required, such work will only be undertaken following the guidelines presented in the CRA Health and Safety SOPs.

## **B.14.0 EMERGENCY RESPONSE**

It is essential that site personnel be prepared in the event of an emergency. Emergencies can take many forms; illnesses or injuries, chemical exposure, fires, explosions, spills, leaks, releases of harmful contaminants, or sudden changes in the weather. The following sections outline the general procedures for emergencies. Emergency information should be posted as appropriate. All emergencies will be reported to the appropriate emergency responders. In general, site personnel will shut down equipment and evacuate to a safe pre-determined meeting area during Site emergencies. This location will be communicated during the Health and Safety Site indoctrination session prior to commencing work at the Site (See Figure 1.2, Site Plan for this location).

### **B.14.1 EMERGENCY CONTACTS**

Detroit Fire Department .....	911
Detroit Police Department, 3 <sup>rd</sup> Precinct .....	313-673-2115
Ambulance .....	911
Hospital: Harper University Hospital .....	313-673-8424
3990 John R,	
Detroit, Michigan 48201	

Directions to the Hospital (See Figure B14.1 - Hospital Route Map): Start on Military Street. Turn left on Fort Street heading west. Turn right onto Dagoon Street. Turn right onto Fisher Freeway, take the I-75 North ramp and merge onto I-75 North. Take the GD River exit (#50) and continue on Fisher Freeway. Turn left onto Woodward Avenue. Turn right onto East Alexandrine Street.

This route will be verified at least weekly by the Resident Engineer, HSO, or other site personnel to determine if road construction activities warrant an alternative route.

### **B.14.2 ADDITIONAL EMERGENCY NUMBERS**

National Response Center (NRC) .....	800-424-8802
Poison Information .....	800-764-7661
Miss Dig Utility Commission (One Call) .....	800-482-7171
Agency for Toxic Substances and Disease Registry .....	404-488-4100 (24 Hours)
EPA On-Scene Coordinator - Brian Kelly .....	734-692-7684
USEPA Emergency Response .....	800-424-8802

State of Michigan Emergency Response Commission.....	517-373-8481
CRA Project Manager - Marc Gaudet.....	905-682-0510
CRA Project Coordinator - Bob Schloesser.....	734-453-5123
CRA Manager of Safety and Health - Gerald Plattenberg.....	734-453-5123
CRA Resident Engineer - Liz Faler.....	734-453-5123

#### **B.14.3      EMERGENCY EQUIPMENT AVAILABLE ON SITE**

<b><i>Communication Equipment</i></b>	<b><i>Location</i></b>
Emergency Alarms/Horns	CRZ
 <b><i>Medical Equipment</i></b>	
OSHA Approved First Aid Kit (Bloodborne pathogens kit)	CRZ or Support Zone
Sized for a Minimum of 20 people	
Portable Emergency Eyewash	
 <b>Fire Fighting Equipment</b>	
Two 20-Pound ABC Type Dry Chemical Fire Extinguishers	CRZ
(inspected monthly)	
Two SCBAs	

#### **B.14.4      PROJECT PERSONNEL RESPONSIBILITIES DURING EMERGENCIES**

##### **HEALTH AND SAFETY OFFICER (HSO)**

As the administrator of the HASP, the HSO has primary responsibility for responding to and correcting emergency situations. The HSO will:

- i) take appropriate measures to protect personnel including: withdrawal from the EZ, total evacuation and securing of the site or upgrading or downgrading the level of protective clothing and respiratory protection;
- ii) take appropriate measures to protect the public and the environment including isolating and securing the Site, preventing runoff to surface waters and ending or controlling the emergency to the extent possible;
- iii) ensure that appropriate Federal, State, and local agencies are informed, and emergency response plans are coordinated. In the event of fire or explosion, the

local fire department should be summoned immediately. In the event of an air release of toxic materials, the local authorities should be informed in order to assess the need for evacuation. In the event of a spill, sanitary districts and drinking water systems may need to be alerted;

- iv) ensure that appropriate decontamination treatment or testing for exposed or injured personnel is obtained;
- v) determine the cause of the incident and make recommendations to prevent the recurrence; and
- vi) ensure that all required reports have been prepared.

#### **B.14.5     MEDICAL EMERGENCIES**

Any person who becomes ill or injured in the EZ must be decontaminated to the maximum extent possible. If the injury or illness is minor, full decontamination should be completed and first aid administered prior to transport. If the patient's condition is serious, at least partial decontamination should be completed as much as possible without causing further harm to the patient. First aid should be administered while awaiting an ambulance or paramedics. All injuries and illnesses must immediately be reported to the HSO, Site Superintendent, and Resident Engineer.

Any person transporting an injured/exposed person to a clinic or hospital for treatment should take with them directions to the hospital and a listing of the contaminants of concern to which they may have been exposed.

Any vehicle used to transport contaminated personnel will be cleaned or decontaminated as necessary.

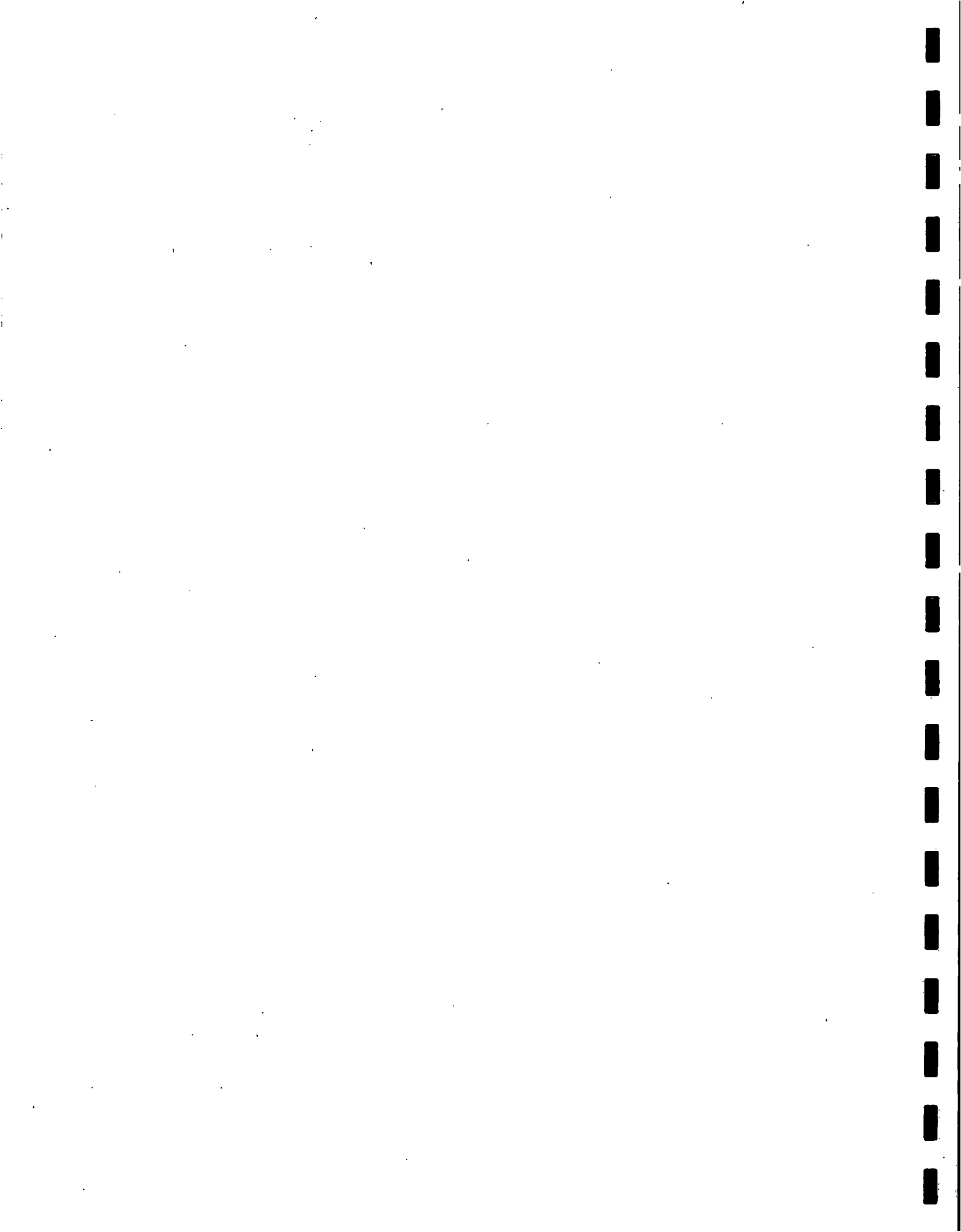
#### **B.14.6     FIRE OR EXPLOSION**

In the event of a fire or explosion, the local fire department should be summoned immediately. Upon their arrival, the HSO or designated alternate will advise the fire commander of the location, nature, and identification of the hazardous materials on Site.

If it is safe to do so, site personnel may :

- i) if hazardous, report to the Resident Engineer, Project Coordinator, and/or Project Manager;





- ii) use fire fighting equipment available on site; or
- iii) remove or isolate flammable or other hazardous materials which may contribute to the fire.

#### **B.14.7     SPILLS OR CONTAINER LEAKS**

In the event of a spill or leak, site personnel will:

- i) report spills and releases to the EPA On-Scene Coordinator, Resident Engineer, Project Coordinator, Project Manager, the NRC, and State Emergency Response Commission (SERC);
- ii) locate the source of the spillage and stop the flow if it can be done safely; and
- iii) begin containment and recovery of the spilled materials.

## **B.15.0 RECORDKEEPING**

The HSO shall establish and maintain records of all necessary and prudent monitoring activities as described below:

- i) name and job classification of the employees involved on specific tasks;
- ii) records of qualitative fit testing and physical examination results for site personnel;
- iii) records of all OSHA training certification for site personnel;
- iv) records of training acknowledgment forms;
- v) records of all air sampling/monitoring equipment calibration logs and results; and

The Contractor will maintain daily safety inspection logs and weekly reports on Site as part of the Health and Safety Program. All daily and weekly logs will be signed by the HSO. Contents of these reports will be as follows:

### **i) Daily Safety Inspection Logs**

These logs will record the following information:

- date;
- areas inspected;
- employees in designated areas;
- equipment being utilized by employees named;
- protective equipment being worn by employees named; and
- air monitoring data reported.

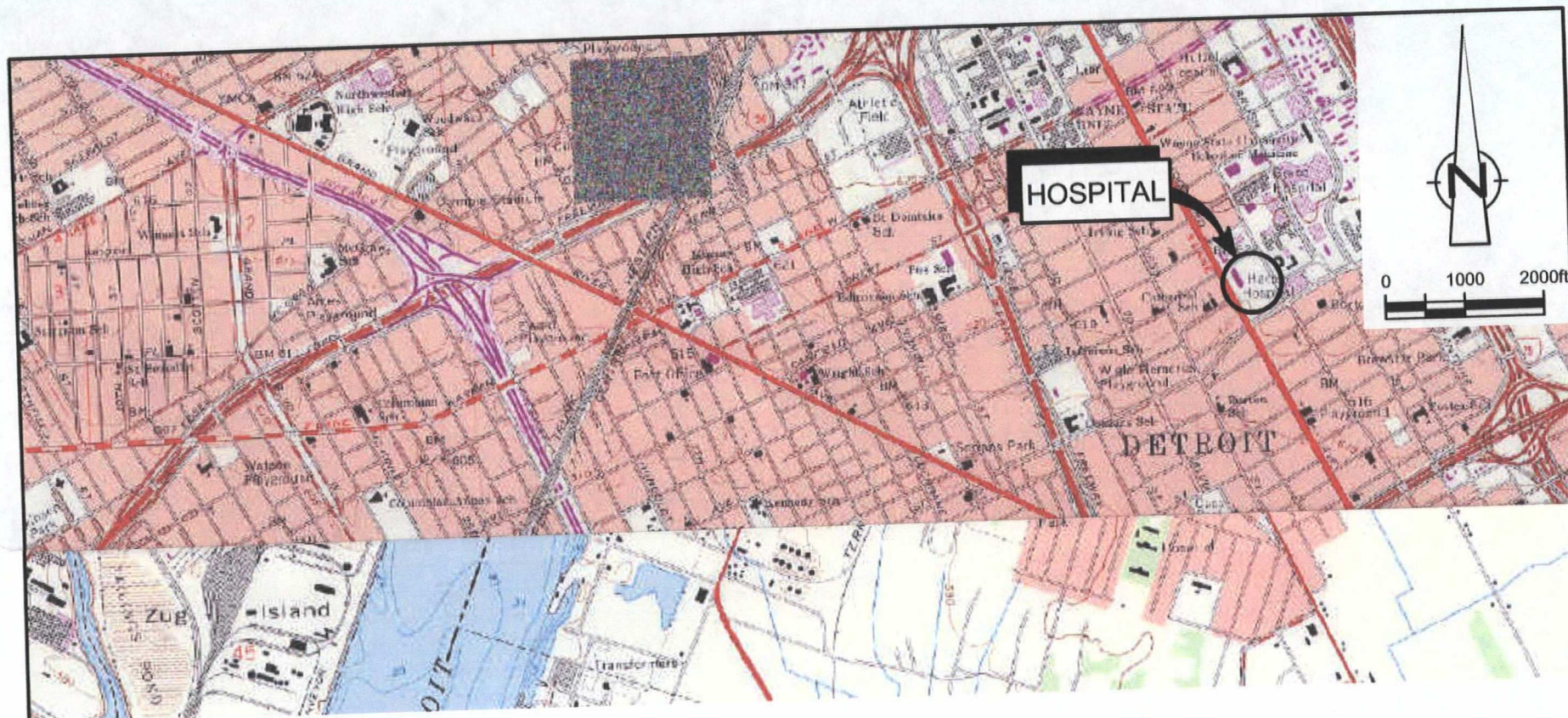
### **ii) Weekly Reports**

These reports will record the following information:

- summary sheet covering range of work activities completed or in progress;
- copies of daily logs;
- copies of analytical and air monitoring results;
- any incidents of:
  - safety violations,
  - misuse of protective equipment,
  - disregard of buddy system,



- violation of eating, drinking, smoking, and chewing in prohibited areas, and
  - instances of job-related injuries and illness (an accident report will be required); and
- vi) - copies of Medical Certificates for on-Site employees.



SOURCE: USGS QUADRANGLE MAP;  
DETROIT, MICHIGAN

figure 14.1

HOSPITAL ROUTE MAP  
SYBILL, INC. SITE  
*Detroit, Michigan*



32664-98(001)GN-DE001 MAR 17/2003

TABLE B.2.1

**EXPOSURE ROUTES AND EXPOSURE LIMITS FOR THE  
CHEMICAL COMPOUNDS PRESENT AT THE SITE  
SYBILL INC.  
DETROIT, MICHIGAN**

<i>Compounds</i>	<i>Ionization Potential</i>	<i>Exposure Routes</i>	<i>Acceptable Exposure Levels In Air</i>
<b><u>Volatile Organic Compounds (VOCs):</u></b>			
Acetone	9.7	Inhalation, Ingestion	500 ppm <sup>(1)</sup> 1000 ppm <sup>(2)</sup> 2500 ppm <sup>(3)</sup>
Benzene	9.24	Inhalation Ingestion Skin Absorption	0.5 ppm <sup>(1)</sup> 1.0 ppm <sup>(2)</sup> 500 ppm <sup>(3)</sup>
Ethyl benzene	8.8	Inhalation, Ingestion	100 ppm <sup>(1)(2)</sup> 800 ppm <sup>(3)</sup>
2-Butanone (MEK)	9.5	Inhalation, Ingestion	200 ppm <sup>(1)(2)</sup> 3000 ppm <sup>(3)</sup>
Mineral Spirits	NI	Inhalation, Ingestion	NI
Hexane	10.18	Inhalation, Ingestion, Skin Absorption	50 ppm <sup>(1)</sup> 500 ppm <sup>(2)</sup> 1100 ppm <sup>(3)</sup>
Toluene	8.8	Inhalation, Ingestion, Skin Absorption	50 ppm <sup>(1)</sup> 200 ppm <sup>(2)</sup> 500 ppm <sup>(3)</sup>
Xylenes (total)	8.5	Inhalation, Ingestion, Skin Absorption	100 ppm <sup>(1)(2)</sup> 900 ppm <sup>(3)</sup>
Styrene	8.47	Inhalation, Ingestion	20 ppm <sup>(1)</sup> 100 ppm <sup>(2)</sup> 700 ppm <sup>(3)</sup>
<b><u>Semi-VOCs:</u></b>			
Acenaphthene	NI	Inhalation, Ingestion	NE
Fluorene	NI	Inhalation, Ingestion	NE
2-Methylnaphthalene	~ 8.0	Inhalation, Ingestion	0.2 mg/m <sup>3</sup> <sup>(2)</sup>
Napthalene	8.1	Inhalation, Ingestion, Skin Absorption	10 ppm <sup>(1)(2)</sup> 250 ppm <sup>(3)</sup>
Phenanthrene	NI	Inhalation, Ingestion	NE

TABLE B.2.1

**EXPOSURE ROUTES AND EXPOSURE LIMITS FOR THE  
CHEMICAL COMPOUNDS PRESENT AT THE SITE  
SYBILL INC.  
DETROIT, MICHIGAN**

<i>Compounds</i>	<i>Ionization Potential</i>	<i>Exposure Routes</i>	<i>Acceptable Exposure Levels In Air</i>
<b><u>Metals</u></b>			
Arsenic	NA	Inhalation, Ingestion, Human Carcinogen	0.01 mg/m <sup>3</sup> (1) (2) 5 mg/m <sup>3</sup> (3)
Chromium	NA	Inhalation, Ingestion	0.5 mg/m <sup>3</sup> (1) 1 mg/m <sup>3</sup> (2) 250 mg/m <sup>3</sup> (3)
Lead	NA	Inhalation, Ingestion, Human Carcinogen	0.05 mg/m <sup>3</sup> (1) (2) 100 mg/m <sup>3</sup> (3)
<b><u>Acids</u></b>			
Nitric Acid	11.95	Inhalation, Ingestion, Skin Absorption	5 mg/m <sup>3</sup> (2)
Sulfuric Acid	NA	Inhalation, Ingestion, Skin Absorption	1 mg/m <sup>3</sup> (2) 1.5 mg/m <sup>3</sup> (3)
Unspecified Acids/Caustics	NA	Inhalation, Ingestion, Skin Absorption	NA
<b><u>Bases</u></b>			
Sodium Hydroxide	NA	Inhalation, Ingestion, Skin Absorption	2 mg/m <sup>3</sup> (2) 10 mg/m <sup>3</sup> (3)
<b><u>Compressed Gases</u></b>			
Propane	11.07	Inhalation	2500 ppm (1) 1000 ppm (2)
Acetylene	11.41	Inhalation	None Established Simple Asphyxiant
Hydrogen	13.59	Inhalation	None Established Simple Asphyxiant
Nitrogen	15.5	Asphyxiant	NE



TABLE B.2.1

**EXPOSURE ROUTES AND EXPOSURE LIMITS FOR THE  
CHEMICAL COMPOUNDS PRESENT AT THE SITE  
SYBILL INC.  
DETROIT, MICHIGAN**

<b>Compounds</b>	<b>Ionization Potential</b>	<b>Exposure Routes</b>	<b>Acceptable Exposure Levels In Air</b>
<b><u>Oxidizers</u></b>			
Hydrogen Peroxide	10.54	Inhalation, Ingestion	1 ppm <sup>(1)</sup> 1 ppm <sup>(2)</sup> 75 ppm <sup>(3)</sup>

**Notes:**

- (1) 2003 Values, American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Values (TLVs).
- (2) Federal Occupational Safety and Health Administration (OSHA) Permissible Exposure Limit (PEL).
- (3) Immediately Dangerous to Life and Health (IDLH).
- mg/m<sup>3</sup> Milligrams per Cubic Meter.
- NA Not Applicable.
- NE Not Established.
- NI No Information
- ppm Parts Per Million.

**TABLE B.6.1**

**SPECIFIC PERSONAL PROTECTION LEVELS  
REMOVAL ACTION WORK PLAN  
SYBILL INC.  
DETROIT, MICHIGAN**

<i>Work Task</i>	<i>Maximum Protection Level <sup>(1)</sup></i>	<i>Alternate Protection Level <sup>(2)</sup></i>
Mobilization and Demobilization of Construction Labor, Materials, and Equipment to and from the Site	Modified D	D
Provision and Maintenance of Construction Facilities and Temporary Controls	Modified D	D
Site Preparation	Level C <sup>(3)</sup>	Modified D/ D
Provision of Site Security	D	D
Implementation of Environmental Controls	Modified D	D
Inventory of Containerized Material	Level C	Modified D
Staging, and Characterization of Contaminated Materials	Level B	Level C/Modified D
Compatibility and Characterization Sampling	Level B	Level C/Modified D
Collection of Air Samples	Modified D	D
Disabling of Tanks	Level C	Modified D/D
Investigation of sewers, catch basins and underground manways	Level B/Level C	Modified D/D
Waste Handling by Transporters	Level C	Modified D/D
Removal of Miscellaneous Debris	Modified D	D
Closeout Activities	Level C	Modified D/D
Personnel and Equipment Decontamination Activities	Level C	Modified D

**Notes:**

Specific requirements for protection levels are detailed in Section 6.1.

- (1) Level C: To be worn when the criterion for using air purifying respirators (APRs) are met and a lesser level of skin protection is needed.  
Modified D: To be worn when dermal protection is required, however, no respiratory hazards are present. It provides minimal protection against chemical hazards.
- (2) Alternate protection levels will be used if monitoring indicates that conditions are appropriate or the Resident Engineer, HSO, and Site Superintendent agree that there is a reduced potential of exposure.
- (3) Level C will be required during floor cleaning operations taking place within contaminated areas.

**TABLE B.6.2**  
**AIR MONITORING ACTION LEVELS**  
**REMOVAL ACTION WORK PLAN**  
**SYBILL INC.**  
**DETROIT, MICHIGAN**

***Total Organic Vapor  
Concentration Above Background***

***Action Required***

**Instrument Reading**

1-10 ppm	Full or half-face APR
10-250 ppm	Supplied Air or SCBA
>250 ppm	Shutdown activities - Move to safe area - Confer with HSO

***Combustible Gases (Non-confined Space)***

**Instrument Reading**

0-10% LEL	Continue working and monitor atmosphere for combustible gases.
10-20% LEL	Continue working with caution. Inform personnel in area. Be prepared to cease operations.
>20% LEL	Cease operations, move to a safe place. Re-evaluate work plan. Ventilate. Do not continue working until conditions are constantly below 20% LEL.

***Oxygen***

**Instrument Reading**

<19.5% or >23.5%	Cease operations, move to a safe area. Re-evaluate work plan. Do not continue working until oxygen levels are between 19.5% and 23.5%.
------------------	--

***Particulate***

**Instrument Reading**

<0.2 mg/m <sup>3</sup>	Continue Operations
0.2 - 2 mg/m <sup>3</sup>	Level C Respiratory Protection
> 2 mg/m <sup>3</sup>	Cease Operations and Confer with HSO

**Notes:**

- 1) APR - Air Purifying Respirator.
- 2) SCBA - Pressure Demand Self Contained Breathing Apparatus.
- 3) An atmospheric oxygen level of less than 19.5% may affect the readings from a combustible gas meter give lower than actual levels. Test oxygen content first.



TABLE B.7.1

**SITE HAZARD ANALYSIS  
REMOVAL ACTION WORK PLAN  
SYBILL INC.  
DETROIT, MICHIGAN**

<i>Work Activity</i>	<i>Anticipated Hazards/Risks</i>	<i>Appropriate Precautions</i>
Mobilization and Demobilization Activities Moving Intact Drums or Drums that have been placed into overpacks, and Drum/Debris Removal	<ul style="list-style-type: none"> <li>• slip/trip/fall hazards</li> <li>• potential back injuries from lifting or moving heavy objects</li> <li>• potential heat or cold stress</li> <li>• poor lighting conditions</li> <li>• electrical hazards from power sources</li> <li>• moving or backing vehicles</li> <li>• pinch points while moving drums</li> </ul>	<ul style="list-style-type: none"> <li>• Level D personal protection</li> <li>• practice safe lifting techniques</li> <li>• participate in on-Site training sessions</li> <li>• practice good personal hygiene principles</li> <li>• mark open pits and sumps with cones and/or caution tape</li> <li>• use a spotter around moving or backing vehicles and equipment</li> <li>• grounded plugs should be used to reduce the hazard of electrical shock. Do not stand in water when handling equipment. Electrical equipment will be approved. Pneumatic tools are preferred</li> <li>• keep first aid supplies readily available</li> <li>• use appropriate equipment to move and handle drums</li> </ul>
Conduct Preliminary Drum/ Container Inventory, Material Characterization and Disposal, Containment Area Cleaning, and Decontamination Activities	<ul style="list-style-type: none"> <li>• slip/trip/fall hazards</li> <li>• potential back injuries from lifting or moving heavy objects</li> <li>• potential heat or cold stress</li> <li>• electrical hazards from power sources</li> <li>• moving or backing vehicles and equipment</li> <li>• direct contact with waste materials</li> <li>• hazards presented by the use of a forklift or other drum moving equipment</li> </ul>	<ul style="list-style-type: none"> <li>• Level B and (Level C based on real time air monitoring for containment area cleaning)</li> <li>• practice safe lifting techniques</li> <li>• participate in all on-Site training programs</li> <li>• be trained with all appropriate equipment standard operating procedures</li> <li>• practice good personal hygiene</li> <li>• take proper precautions in unsafe areas</li> <li>• mark open pits and sumps with cones and/or caution tape</li> </ul>

TABLE B.7.1

**SITE HAZARD ANALYSIS  
REMOVAL ACTION WORK PLAN  
SYBILL INC.  
DETROIT, MICHIGAN**

<i>Work Activity</i>	<i>Anticipated Hazards/Risks</i>	<i>Appropriate Precautions</i>
	<ul style="list-style-type: none"> <li>• potential overhead objects (e.g., power lines when backing transport vehicles in)</li> <li>• reduced field of vision from wearing supplied air or full-facepiece respirators</li> <li>• hazards presented by use of specialized floor cleaning equipment (e.g., steam cleaner)</li> </ul>	<ul style="list-style-type: none"> <li>• use the "Buddy System"</li> <li>• only essential personnel allowed in work area</li> <li>• use a spotter around moving or backing equipment</li> <li>• groundwater plugs should be used to reduce the hazard of electrical shock. Do not stand in water when handling equipment</li> <li>• Electrical equipment will be approved. Pneumatic tools are preferred</li> <li>• keep first aid supplies readily available</li> </ul>

**TABLE B.7.2**  
**WORK SITE ILLUMINATION REQUIREMENTS**  
**REMOVAL ACTION WORK PLAN**  
**SYBILL, INC.**  
**DETROIT, MICHIGAN**

**MINIMUM ILLUMINATION INTENSITIES IN FOOT-CANDLES**

Foot-candles	Area or operations
5	General site areas.
3	Excavation and waste areas, accessways, active storage areas, loading platforms, refueling, and field maintenance areas.
5	Indoors: warehouses, corridors, hallways, and exitways.
5	Tunnels, shafts, and general underground work areas; (Exception: minimum of 10 foot-candles is required at tunnel and shaft heading during drilling, mucking, and scaling. Mine Safety and Health Administration approved cap lights shall be acceptable for use in the tunnel heading.
10	General shops (e.g., mechanical and electrical equipment rooms, active storerooms, barracks or living quarters, locker or dressing rooms, dining areas, and indoor toilets and workrooms.
30	First aid stations, infirmaries, and offices.

**ATTACHMENT A**

**TRAINING ACKNOWLEDGEMENT FORM**



**I have read and/or received instruction on the Site Safety Plan for the former Sybill, Inc. Site and understand the Site Safety Plan. I have been informed who to contact if I have any questions and know where to report any additional health and safety hazards. I agree to work to the safety plan guidelines and understand that failure to do so could result in removal from the Site.**

[illegible]

**ATTACHMENT B**

**DAILY SAFETY MEETING LOG**

## DAILY SAFETY MEETING LOG

PROJECT: \_\_\_\_\_ LOCATION: \_\_\_\_\_

DATE/TIME: \_\_\_\_\_

**1. Safety Issues or Topics Discussed:**


**2. Work Summary and Physical/Chemical Hazards of Concern:**


**3. Protective Equipment/Procedures:**


**4. Emergency Procedure:**

Notify Site Supervision of any incidents/injuries/overexposures.


**5. Signatures of Attendees:**


**ATTACHMENT C**

**TRAINING CERTIFICATIONS/DOCUMENTATION**



Originals  
10/10/00

